MDX-C7970/C7970R

SERVICE MANUAL

US Model
Canadian Model
E Model
MDX-C7970
AEP Model
UK Model
MDX-C7970R



For RM-X4S (Remote Commander), please refer to RM-X4S Service Manual (9-925-698-□□) previously issued.

Photo: MDX-C7970R

Model Name Using Similar Mechanism	MDX-C7900/C7900R
Base Mechanism Type	MG-164N-138
Optical Pick-Up Name	KMS-241B/J1NP

SPECIFICATIONS

AUDIO POWER SPECIFICATIONS (US model)

POWER OUTPUT AND TOTAL HARMONIC DISTORTION
17 watts per channel minimum continuous average power into 4 ohms, 4 channels driven from 20 Hz to 20 kHz with no more than 1% total harmonic distortion.

Other specifications

MD player section

Signal-to-noise ratio	90 dB
Frequency response	10 – 20,000 Hz
Wow and flutter	Below measurable limit
Laser Diode Properties	
Material	GaAlAs
Wavelength	780 nm
Emission Duration	Continuous
Laser output power	Less than 44.6 W*

* *This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block.*

Tuner section

FM

Tuning range	87.5 – 107.9 MHz (C7970) 87.5 – 108.0 MHz (C7970R)
Antenna terminal	External antenna connector
Intermediate frequency	10.7 MHz
Usable sensitivity	8 dBf
Selectivity	75 dB at 400 kHz
Signal-to-noise ratio	65 dB (stereo), 68 dB (mono)
Harmonic distortion at 1 kHz	0.7 % (stereo), 0.4 % (mono)
Separation	35 dB at 1 kHz
Frequency response	30 – 15,000 Hz

AM (C7970)

Tuning range	530 – 1,710 kHz
Antenna terminal	External antenna conne
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	30 µV

MW/LW (C7970R)

Tuning range	MW: 531 – 1,602 kHz LW: 153 – 281 kHz
Aerial terminal	External aerial connect
Intermediate frequency	10.71 MHz/450 kHz
Sensitivity	MW: 30 µV LW: 50 µV

– Continued on next page –

FM/AM(MW/LW) MINIDISC PLAYER

MICROFILM

SONY®

Power amplifier section

Outputs	Speaker outputs (sure seal connectors)
Speaker impedance	4 – 8 ohms
Maximum power output	40 W × 4 (at 4 ohms)

General

Outputs	Line outputs (2) Power antenna relay control lead Power amplifier control lead Telephone ATT control lead Illumination control lead
Tone controls	Bass ±8 dB at 100 Hz Treble ±8 dB at 10 kHz
Power requirements	12 V DC car battery (negative ground)
Dimensions	Approx. 178 × 50 × 184 mm $(7^{1}/_{8} \times 2 \times 7^{1}/_{4})$ (w/h/d)
Mounting dimensions	Approx. 182 × 53 × 162 mm $(7^{1}/_{4} \times 2^{1}/_{8} \times 6^{1}/_{2})$ (w/h/d)
Mass	Approx. 1.2 kg (2 lb 10 oz)
Supplied accessories	Rotary commander (1) Parts for installation and connections (1 set) Front panel case (1)

U.S. and foreign patents licensed from Dolby laboratories Licensing Corporation.

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

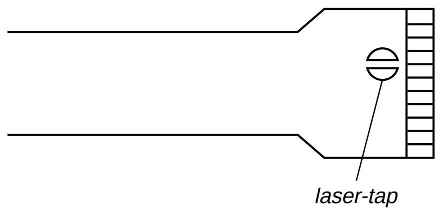
The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

Never look into the laser diode emission from right avove when checking it for adustment. It is feared that you will lose your sight.

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK (KMS-241B/J1NP)

The laser diode in the optical pick-up block may suffer electrostatic break-down easily. When handling it, perform soldering bridge to the laser-tap on the flexible board. Also perform m easures against electrostatic break-down sufficiently before the operation. The flexible board is easily damaged and should be handled with care.



OPTICAL PICK-UP FLEXIBLE BOARD

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

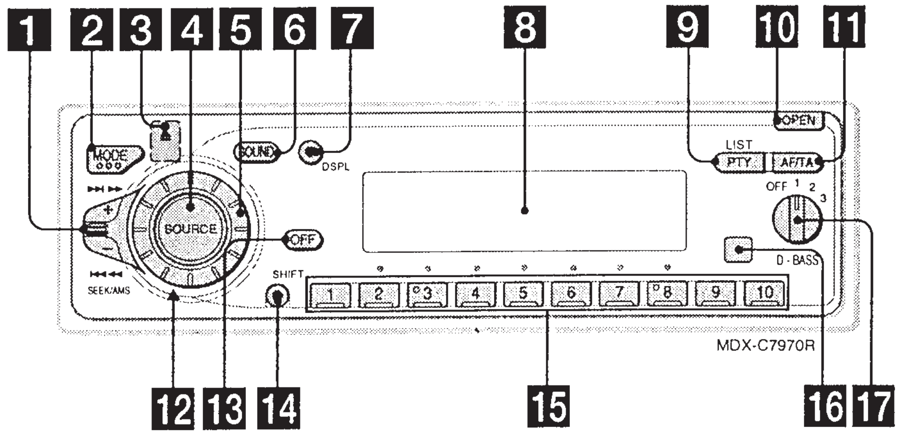
- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

TABLE OF CONTENTS

This section is extracted from instruction manual.

Location of controls



Refer to the pages for details.

1. SEEK/AMS (seek/Automatic Music Sensor/manual search) control 10, 11, 12, 14, 16, 21, 24
2. MODE (band/unit select) button 11, 12, 20, 23
3. ≜ (eject) button (located on the front of the unit hidden by the front panel) 9
4. SOURCE (source select) button 9, 11, 12, 15, 20, 21, 23
5. Dial (volume/subwoofer volume/bass/treble/left-right/rear-front control) 8, 22, 23
6. SOUND button 19
7. DSPL (display mode change) button 9, 12, 13, 20, 21, 23 (C7970R)
8. Display window
9. PTY/LIST button (C7970R)
   Disc Memo 22, 23
   List-up 23
   RDS Programme 16
   LIST button (C7970)
10. OPEN button 7, 9, 25
11. AF/TA button 13, 14, 15 (C7970R)
    DSPL (display mode change) button
12. Reset button (located on the front side of the unit behind by the front panel) 7
13. OFF button 7, 9
14. SHIFT button
    SET UP 8, 9, 17, 19
    PLAY MODE 11, 12, 14, 15, 24
    REP 10, 22
    SHUF 10, 22
15. During radio reception:
    Number buttons 11, 12, 14, 15
    During CD/MD playback:
    Direct disc selection buttons 21
16. Receptor for the optional wireless remote
17. D-BASS control 20

5

Getting Started

Resetting the unit

Before operating the unit for the first time or after replacing the car battery, you must reset the unit.
Remove the front pannel and press the reset button with a pointed object, such as a ballpoint pen.



Reset button

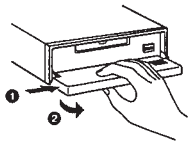
Note
Pressing the reset button will erase the clock setting and some memorised functions.

Detaching the front panel

You can detach the front panel of this unit to protect the unit from being stolen.

1 Press (OFF).

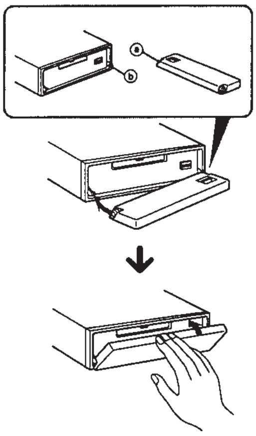
2 Press (OPEN), **then slide the front panel to the right side, and pull out the left side of the front panel.**



Notes
- *Do not put anything on the inner surface of the front panel.*
- *Be sure not to drop the panel when detaching it from the unit.*
- *If you detach the panel while the unit is still turned on, the power will turn off automatically to prevent the speakers from being damaged.*
- *When carrying the front panel with you, use the supplied front panel case.*

Attaching the front panel

Place the hole ⓐ in the front panel onto the spindle ⓑ on the unit as illustrated, then push the left side in.



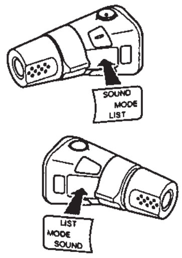
Notes
- *Be sure not to attach the front panel upside down.*
- *Do not press the front panel too hard against the unit when attaching it.*
- *Do not press too hard or put excessive pressure on the display window of the front panel.*
- *Do not expose the front panel to direct sunlight or heat sources such as hot air ducts, and do not leave it in a humid place. Never leave it on the dashboard of a car parked in direct sunlight or where there may be a considerable rise in temperature.*

Caution alarm

If you turn the ignition key switch to the OFF position without removing the front panel, the caution alarm will beep for a few seconds.

Preparing the rotary commander

When you mount the rotary commander, attach the label in the illustration below.



Setting the clock

The clock uses a 24-hour digital indication.

Example: To set the clock to 10:08

1 Press (SHIFT), **then press** (3) **(SET UP) repeatedly until "Clock" appears.**

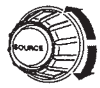
Set Clock

❶ **Press** (5) **(→).**

Set 1:00

The hour indication flashes.

❷ **Set the hour.**



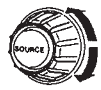
Set 10:00

❸ **Press** (5) **(→).**

Set 10:00

The minute indication flashes.

❹ **Set the minute.**



Set 10:08

2 Press (SHIFT).

10:08

The clock starts.

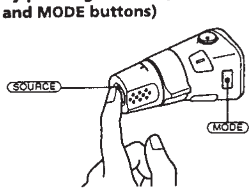
3 Press (SHIFT).
After the Clock setting is complete, the display returns to normal playback mode.

Other Functions

Using the rotary commander

The rotary commander works by pressing buttons and/or rotating controls.
You can control an optional CD or MD unit with the rotary commander.

By pressing buttons (the SOURCE and MODE buttons)

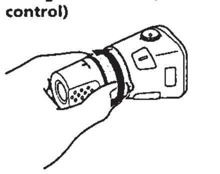


Each time you press (SOURCE), **the source changes as follows:**
Tuner → CD* → MD

- *If the corresponding optional equipment is not connected, this item will not appear.*

Pressing (MODE) **changes the operation in the following ways:**
- **Tuner: FM1 → FM2 → MW → LW**
- **CD unit: CD1 → CD2 → ...**
- **MD unit: MD1 → MD2 → ...**

By rotating the control (the SEEK/AMS control)



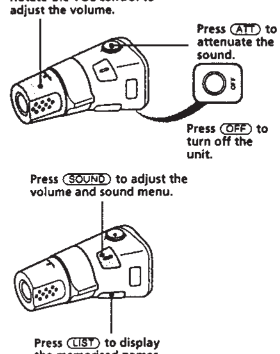
Rotate the control momentarily and release it to:
- Locate a specific track on a disc. Rotate and hold the control until you locate the specific point in a track, then release it to start playback.
- Tune in stations automatically. Rotate and hold the control to find a specific station.

By pushing in and rotating the control (the PRESET/DISC control)



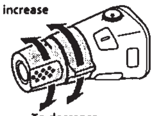
Push in and rotate the control to:
- Receive the stations memorised on the number buttons.
- Change the disc.

Other operations



Changing the operative direction

The operative direction of controls is factory-set as shown below.



If you need to mount the rotary commander on the right hand side of the steering column, you can reverse the operative direction.



Press (SOUND) **for two seconds while pushing the VOL control.**

Tip
You can also change the operative direction of these controls with the unit (page 19).

Adjusting the sound characteristics

You can adjust the bass, treble, balance, and fader.
You can store the bass and treble levels independently for each source.

1 **Select the item you want to adjust by pressing** (SOUND) **repeatedly.**
Each time you press (SOUND), the item changes as follows:
VOL (volume) → BAS (bass) → TRE (treble) → BAL (left-right) → FAD (front-rear)

2 **Adjust the selected item by rotating the dial.**
Adjust within three seconds after selecting the item. (After three seconds, the dial functions reverts to volume control.)

Attenuating the sound

Press (ATT) **on the rotary commander or optional wireless remote.**
"ATT on" flashes momentarily.

To restore the previous volume level, press (ATT) again.

Tip
The unit decreases the volume automatically when a telephone call comes in (Telephone ATT function).

Changing the sound and display settings

The following items can be set:
• Clock (page 8)
• CT (Clock Time) (page 17)
• D.Info (Dual Information) to display the clock and the play mode at the same time (on) or to display the information alternately (off).
• Amber/Green to change the illumination colour to amber or green.
• Dimmer to change the brightness of the display.
  — Select "Auto" to dim the display only when you turn the lights on.
  — Select "on" to dim the display.
• Contrast to adjust the contrast if the indications in the display are not recognizable because of the unit's installed position.
• Beep to turn on or off the beeps.
• RM (Rotary Commander) to change the operative direction of the controls of the rotary commander.
  — Select "norm" to use the rotary commamder as the factory-set position.
  — Select "rev" when you mount the rotary commander on the right side of the steering column.
• M.dspl (Motion Display) to turn the motion display on or off.
• A.Scrl (Auto Scroll) (page 9, 21)

Note
If you connect an optional power amplifier and do not use the built-in amplifier, the beep sound will be disabled.

1 Press (SHIFT).

2 Press (3) (SET UP) repeatedly until the desired item appears.
Each time you press (3) (SET UP), the item changes as follows:

Clock → CT → D.Info* → Amber/Green → Dimmer → Contrast → Beep → RM → M.dspl → A.Scrl*

** When no CD or MD is playing, this item will not appear.*

Note
The displayed item will differ depending on the source.

continue to next page →

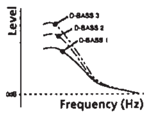
3 Press (5) (→) to select the desired setting (Example: on or off).
For the "Contrast" setting, pressing (5) (→) makes the contrast higher, and pressing (2) (←) makes the contrast lower.

4 Press (SHIFT).
After the mode setting is complete, the display returns to normal playback mode.

Boosting the bass sound

— D-bass

You can enjoy a clear and powerful bass sound.
The D-bass function boosts the low frequency signal with a sharper curve than conventional bass boost.
You can hear the bass line more clearly even while the vocal volume remains the same. You can emphasize and adjust the bass sound easily with the D-BASS control.



Adjusting the bass curve

Turn the D-BASS control to adjust the bass level (1, 2 or 3).
"D-BASS" appears in the display.

To cancel, turn the control to OFF.

Note
If the bass sound becomes distorted, adjust the D-BASS control or volume control.

Installation

Précautions

- Ne pas toucher les quatre orifices sur le panneau supérieur de l'appareil. Ils servent aux réglages du syntoniseur qui ne doivent être effectués que par un technicien.
- Choisir soigneusement l'emplacement de l'installation afin que l'appareil ne gêne pas la conduite normale du véhicule.
- Eviter d'installer l'appareil dans un endroit exposé à des températures élevées, comme en plein soleil ou à proximité d'une bouche d'air chaud, ou à de la poussière, saleté ou vibrations violentes.
- Pour garantir un montage sûr, n'utiliser que le matériel fourni.

Réglage de l'angle de montage

Ajuster l'inclinaison à un angle inférieur à 20°.

Installation

Vorsichtsmaßnahmen

- Nehmen Sie an den vier Öffnungen an der Oberseite des Geräts keine Einstellungen vor. Diese Öffnungen dienen dem Tuner-Abgleich; der Abgleich darf nur von einem Fachmann vorgenommen werden.
- Wählen Sie den Einbauort sorgfältig so aus, daß das Gerät beim Fahren nicht hinderlich ist.
- Bauen Sie das Gerät so ein, daß es keinen hohen Temperaturen (keinem direkten Sonnenlicht, keiner Warmluft von der Heizung), keinem Staub, keinem Schmutz und keinen starken Vibrationen ausgesetzt ist.
- Für eine sichere Befestigung verwenden Sie stets nur die mitgelieferten Montageteile.

Hinweis zum Montagewinkel

Das Gerät sollte in einem Winkel von weniger als 20° montiert werden.

Montage

Voorzorgsmaatregelen

- Kom niet aan de vier openingen aan de bovenkant van het apparaat. Deze dienen voor het maken van bijstellingen voor de tuner, hetgeen uitsluitend door bevoegd onderhoudspersoneel verricht mag worden.
- Kies de installatieplaats zorgvuldig zodat het toestel de bestuurder niet hindert tijdens het rijden.
- Installeer het apparaat niet op plaatsen waar het blootgesteld wordt aan hoge temperaturen, b.v. in direct zonlicht of bij de warme luchtstroom van de autoverwarming, aan sterke trillingen, of waar het in contact komt met veel stof of vuil.
- Gebruik voor het veilig en stevig monteren van het apparaat uitsluitend de bijgeleverde montage-onderdelen.

Maximale montagehoek

Installeer het apparaat nooit onder een hoek van meer dan 20° met het horizontale vlak.

Installazione

Precauzioni

- Non toccare i quattro fori sulla superficie superiore dell'apparecchio. Servono per regolazioni di sintonizzazione che devono essere eseguite solo da tecnici per la manutenzione.
- Scegliere con attenzione la posizione per l'installazione in modo che l'apparecchio non interferisca con le operazioni di guida del conducente.
- Evitare di installare l'apparecchio dove sia soggetto ad alte temperature, come alla luce solare diretta o al getto di aria calda dell'impianto di riscaldamento, o dove possa essere soggetto a polvere, sporco e vibrazioni eccessive.
- Usare solo il materiale di montaggio in dotazione per un'installazione stabile e sicura.

Regolazione dell'angolo di montaggio

Regolare l'angolo di montaggio in modo che sia inferiore a 20°.

Установка

Меры предосторожности

- Не пытайтесь ничего сделать с четырьмя отверстиями, расположенными на верхней поверхности магнитолы. Они предназначены для настройки радиоприемника, осуществляемой только квалифицированными специалистами.
- Место для установки магнитолы выбирайте тщательно, чтобы она не мешала нормальному управлению автомобилем.
- Не устанавливайте магнитолу там, где она будет подвержена воздействию пыли, грязи, чрезмерной вибрации или высоких температур, например в местах, попадающих под прямые солнечные лучи или находящихся вблизи вентиляционных решеток обогревателей.
- В целях обеспечения надежной и безопасной установки используйте лишь входящие в комплект монтажные детали.

Допустимый угол установки

Установите магнитолу под углом не более 20°.

Retrait et pose de la façade

Avant d'installer l'appareil, déposer la façade.

A Pour retirer

Avant de retirer la façade, ne pas oublier d'appuyer d'abord sur (OFF). Appuyer sur (OPEN), puis faire glisser la façade vers la droite et la retirer par la gauche.

B Pour attacher

Fixez la partie ⓐ de la façade sur la partie ⓑ de l'appareil, comme indiqué sur l'illustration, puis appuyez sur le côté gauche jusqu'au déclic.

Abnehmen und Anbringen der Frontplatte

Nehmen Sie die Frontplatte vor dem Einbau des Geräts ab.

A Abnehmen

Drücken Sie auf jeden Fall (OFF), bevor Sie die Frontplatte abnehmen. Drücken Sie (OPEN), schieben Sie dann die Frontplatte nach rechts, und ziehen Sie sie an der linken Seite heraus.

B Anbringen

Setzen Sie Teil ⓐ der Frontplatte wie in der Abbildung dargestellt an Teil ⓑ des Geräts an, und drücken Sie die linke Seite der Frontplatte an, bis sie mit einem Klicken einrastet.

Verwijderen en bevestigen van het afneembare voorpaneel

Verwijder, alvorens met het installeren te beginnen, het afneembare voorpaneel.

A Verwijderen

Druk eerst op (OFF) alvorens het voorpaneel los te maken. Druk op (OPEN), schuif het voorpaneel naar rechts en trek het los aan de linkerkant.

B Bevestigen

Breng deel ⓐ van het voorpaneel aan op deel ⓑ van het apparaat zoals afgebeeld en druk op de linkerzijde tot deze vastklikt.

Come rimuovere e reinserire il pannello anteriore

Prima di installare l'apparecchio rimuovere il pannello anteriore.

A Per rimuoverlo

Prima di rimuovere il pannello anteriore, assicurarsi di premere (OFF). Premere (OPEN), quindi far scivolare il pannello anteriore verso destra e tirare il lato sinistro verso di sé.

B Per reinserirlo

Applicare la foro ⓐ del pannello anteriore al mandrino ⓑ dell'apparecchio come mostrato nell'illustrazione e premere il lato sinistro fino a sentire uno scatto.

Порядок снятия и установки передней панели

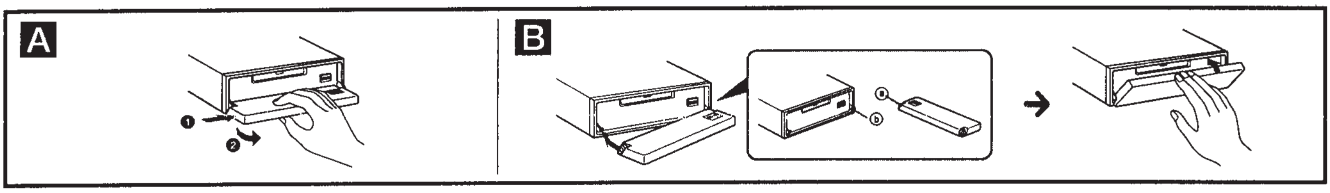
Перед установкой магнитолы снимите с нее переднюю панель.

A Снятие панели

Прежде чем снимать переднюю панель, обязательно отключите магнитолу, нажав клавишу (OFF). Затем нажмите (OPEN), сдвиньте переднюю панель вправо и, потянув за левую часть панели, снимите ее.

B Установка панели

Сначала совместите отверстие ⓐ на передней панели со штырьком ⓑ на магнитоле, как это показано на иллюстрации, а затем вдвиньте в паз левую часть панели.



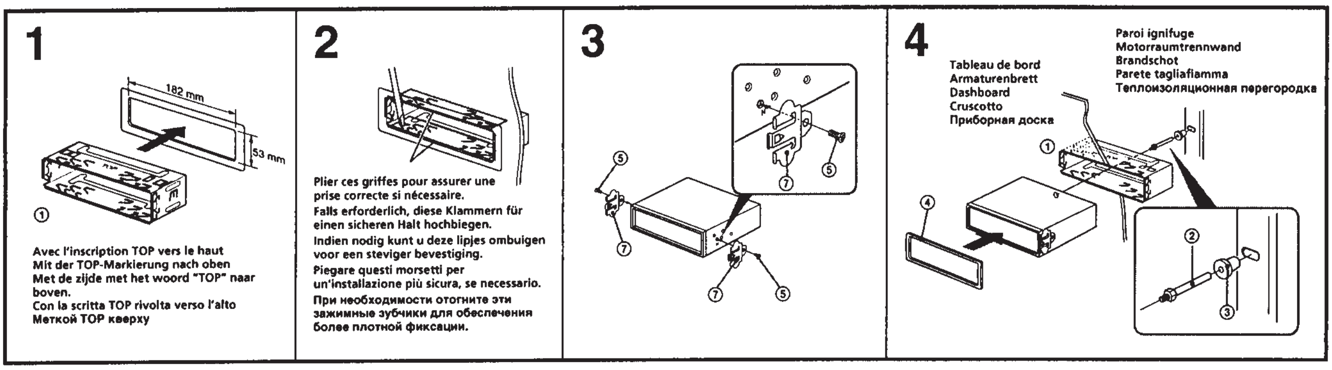
Installation dans le tableau de bord

Installation im Armaturenbrett

Montage in het dashboard

Installazione nel cruscotto

Установка магнитолы в приборной доске



Touche de réinitialisation

Quand l'installation et les connexions sont terminées, appuyer sur la touche de réinitialisation avec un stylo à bille, etc.

Rücksetztaste

Nach der Installation und dem Anschluß muß die Rücksetztaste mit einem Kugelschreiber o. ä. gedrückt werden.

Terugsteltoets

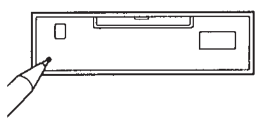
Druk, nadat u het apparaat heeft geïnstalleerd en de aansluitingen heeft gemaakt, met een balpen of een ander puntig voorwerp op de terugsteltoets.

Tasto di azzeramento

Dopo avere terminato l'installazione e i collegamenti, assicurarsi di premere il tasto di azzeramento con la punta di una penna a sfera, ecc.

Клавиша переустановки

По окончании установки и всех подсоединений не забудьте нажать кончиком шариковой ручки или иным аналогичным предметом кнопку переустановки.



Connexions

Précautions

- **Cet appareil est conçu pour fonctionner sur courant continu de 12 V avec masse négative.**
- **Veiller à ne pas coincer de fils entre une vis et la carrosserie de la voiture ou cet appareil ou encore entre des pièces mobiles comme les glissières des sièges, etc.**
- **Brancher le cordon d'alimention ⑧ sur l'appareil et les haut-parleurs avant de le brancher sur le connecteur d'alimentation auxiliaire.**
- **Rassembler tous les fils de terre en un point de masse commun.**
- Brancher le câble jaune à un circuit libre de la voiture dont la capacité nominale est supérieure à la capacité du fusible de l'appareil. Si vous branchez cet appareil en série avec d'autres composants stéréo, le circuit de la voiture auquel ils sont raccordés doit afficher une capacité nominale supérieure à la somme des capacités individuelles de chaque composant. S'il n'y a pas de circuits de voiture affichant une capacité égale à la capacité du fusible de l'appareil, brancher l'appareil directement à la batterie. Si aucun circuit de voiture n'est disponible pour connecter cet appareil, brancher l'appareil à un circuit de voiture supérieur à la capacité du fusible de l'appareil de telle sorte que si l'appareil grille son fusible, aucun autre circuit ne soit coupé.
- Le raccordement de cet appareil peut entraîner une certaine usure de la batterie si le contact de votre voiture n'est pas doté d'une position accessoires (ACC). En pareil cas, consultez votre revendeur Sony.

Anschluß

Vorsicht

- Dieses Gerät ist ausschließlich für den Betrieb bei 12 V Gleichstrom (negative Erdung) bestimmt.
- Achten Sie darauf, keine Kabel zwischen einer Schraube und der Karosserie oder diesem Gerät oder zwischen beweglichen Teilen wie den Sitzschienen usw. einzuklemmen.
- Verbinden Sie das Stromversorgungskabel ⑧ mit dem Gerät und den Lautsprechern, bevor Sie es mit dem Hilfsstromanschluß verbinden.
- **Schließen Sie alle Erdungskabel an einen gemeinsamen Massepunkt an.**
- Schließen Sie das gelbe Kabel an einen freien Autostromkreis mit höherer Leistung als der der Gerätesicherung an. Wenn Sie dieses Gerät zusammen mit anderen Stereokomponenten anschließen, muß der Autostromkreis, an den die Geräte angeschlossen sind, eine höhere Leistung aufweisen als die Summe der Sicherungen der einzelnen Komponenten. Wenn kein Autostromkreis eine so hohe Leistung aufweist wie die Sicherung des Geräts, schließen Sie das Gerät direkt an die Batterie an. Wenn kein Autostromkreis zum Anschließen dieses Geräts frei ist, schließen Sie das Gerät an einen Autostromkreis mit höherer Leistung als der der Gerätesicherung an, und zwar so, daß keine anderen Stromkreise unterbrochen werden, wenn die Sicherung durchbrennen sollte.
- Wenn Sie dieses Gerät anschließen, kann es zu einer gewissen Belastung der Autobatterie kommen, wenn am Zündschloß Ihres Fahrzeugs keine Zubehörposition (ACC) vorhanden ist. Wenden Sie sich in einem solchen Fall an Ihren Sony-Händler.

Aansluitingen

Let op!

- Dit apparaat is ontworpen voor gebruik op gelijkstroom van een 12 Volts auto-accu, negatief geaard.
- Zorg ervoor dat er geen snoeren geklemd zitten tussen een schroef en het koetswerk, het toestel of bewegende onderdelen zoals de zetelrail, enz.
- Sluit het netsnoer ⑧ aan op het toestel en de luidsprekers vooraleer u het op de hulpvoedingsaansluiting aansluit.
- **Sluit alle aarddraden op een gemeenschappelijk aardpunt aan.**
- Sluit het gele snoer aan op een vrij autocircuit met een capaciteit die hoger ligt dan die van de toestelzekering. Als u dit toestel in serie schakelt met andere audiocomponenten, moet de capaciteit van het autocircuit waarop ze zijn aangesloten hoger zijn dan de som van de zekeringcapaciteit van elke component afzonderlijk. Als er geen autocircuits een even hoge capaciteit hebben als de toestelzekering, moet het toestel rechtstreeks worden aangesloten op de accu. Als er geen autocircuits beschikbaar zijn om dit toestel aan te sluiten, moet u het toestel aansluiten op een autocircuit met een hogere capaciteit dan die van de toestelzekering. Indien de toestelzekering dan doorbrandt, worden geen andere circuits onderbroken.
- Door dit toestel aan te sluiten kan de autobatterij wat slijten indien het contactslot niet is voorzien van een ACC (accessoire) stand. Raadpleeg in dit geval uw Sony dealer.

Collegamenti

Attenzione

- Questo apparecchio è stato progettato per l'uso solo a 12 V CC con massa negativa.
- Far attenzione che i cavi non rimangano impigliati tra la vite e la carrozzeria della macchina o l'apparecchio o tra le parti mobili della macchina, come le guide di scorrimento del sedile, ecc.
- Collegare il cavo di collegamento dell'alimentazione ⑧ all'apparecchio e ai diffusori prima di collegarlo al connettore di alimentazione ausiliare.
- **Portare tutti i cavi di massa a un punto di massa comune.**
- Collegare il cavo giallo a un circuito libero della macchina con potenza nominale superiore a quella del fusibile dell'apparecchio. Se si collega questo apparecchio in serie con altri componenti stereo, il circuito della macchina a cui sono collegati deve avere una potenza nominale superiore alla somma della potenza nominale dei fusibili di ogni apparecchio. Se i circuiti della macchina non hanno potenza nominale superiore a quella dei fusibili, collegare l'apparecchio direttamente alla batteria. Se non si hanno a disposizione circuiti della macchina per collegare l'apparecchio, collegare l'apparecchio a un circuito della macchina con potenza nominale superiore a quella del fusibile dell'apparecchio in modo tale che, se il fusibile dell'apparecchio salta, gli altri circuiti non verranno tagliati fuori.
- Se si collega questo apparecchio a un'auto sprovvista della posizione ACC (accessoria) sull'interruttore della chiave di accensione, la batteria potrebbe scaricarsi. In tal caso, consultare il rivenditore Sony più vicino.

Подсоединение

Предостережения

- Данная автомагнитола предназначена для подключения только к 12-вольтному аккумулятору постоянного тока с заземлением минуса на массу.
- Следите за тем, чтобы не защемить какие-либо провода между винтом и корпусом автомобиля или магнитолы либо между подвижными частями в салоне автомобиля, например, передним сиденьем и металлическими направляющими рейками под ним.
- Подсоедините шнур питания ⑧ сначала к магнитоле и громкоговорителям, а уже потом - к контактам внешнего источника питания.
- Подведите все провода заземления к одной и той же точке заземления.
- Подсоедините желтый провод к свободной электроцепи автомобиля с большей силой тока чем та, на которую рассчитан предохранитель магнитолы. Если Вы подсоединяете эту магнитолу в сочетании с другими компонентами стереосистемы, сила тока в электроцепи автомобиля, к которой они подключаются, должна быть больше суммы значений силы тока, на которую рассчитаны предохранители отдельных компонентов. В случае отсутствия в автомобиле контура со столь же высокой силой тока, как та, на которую рассчитан предохранитель магнитолы, подсоедините магнитолу напрямую к аккумулятору. В случае если в автомобиле нет свободных электроцепей для подсоединения магнитолы, подсоедините ее к автоэлектроцепи с силой тока выше того значения, на которое рассчитан предохранитель магнитолы, таким образом, чтобы если он перегорит, другие цепи не прервались.
- В случае если замок зажигания Вашего автомобиля не имеет положения ACC (для отключения питания подсоединяемой аппаратуры), подключение магнитолы может приводить к частичному расходованию энергии аккумулятора. В таком случае проконсультируйтесь, пожалуйста, с ближайшим дилером фирмы Sony.

Remarques sur l'exemple de connexion

Remarques sur les fils de contrôle

- Le fil de commande (bleu) de l'antenne électrique assure une alimentation de +12 V CC lorsque vous mettez le syntoniseur sous tension ou lorsque vous activez la fonction ATA (activation automatique de la radio), AF (fréquence secondaire) ou TA (informations routières).
- Une antenne électrique sans boitier de relais ne peut pas être utilisée avec cet appareil.

Avertissement

Si vous disposez d'une antenne électrique sans boitier de relais, le branchement de cet appareil au moyen du cordon d'alimentation fourni ⑧ risque d'endommager l'antenne.

Connexion pour la conservation de la mémoire

Lorsque le fil d'entrée d'alimentation jaune est connecté, le circuit de la mémoire est alimenté en permanence même si la clé de contact est sur la position d'arrêt.

Remarques sur la connexion des haut-parleurs

- Avant de raccorder les haut-parleurs, mettre l'appareil hors tension.
- Utiliser des haut-parleurs ayant une impédance de 4 à 8 ohms et une capacité adéquate sous peine de les endommager.
- Ne pas raccorder les bornes du système de haut-parleurs au châssis de la voiture et ne pas connecter les bornes du haut-parleur droit à celles du haut-parleur gauche.
- Ne pas tenter de raccorder les haut-parleurs en parallèle.
- Ne pas connecter d'enceintes acoustiques actives (avec amplificateurs intégrés) aux bornes d'enceinte de cet appareil, pour éviter d'endommager les enceintes. Veiller à raccorder des enceintes passives.

Hinweise zum Anschlußbeispiel

Hinweise zu den Steuerleitungen

- Die Motorantennen-Steuerleitung (blau) liefert +12 V Gleichstrom, wenn Sie den Tuner einschalten oder die ATA- (Automatische Tuner-Aktivierung), die AF- (Alternativfrequenzsuche) oder die TA-Funktion (Verkehrsdurchsagen) aktivieren.
- Es kann nur eine Motorantenne mit Relaiskästchen angeschlossen werden.

Warnung

Wenn Sie eine Motorantenne ohne Relaiskästchen verwenden, kann durch Anschließen dieses Geräts mit dem mitgelieferten Stromversorgungskabel ⑧ die Antenne beschädigt werden.

Stromversorgung des Speichers

Wenn das gelbe Stromversorgungskabel angeschlossen ist, wird der Speicher stets (auch bei ausgeschalteter Zündung) mit Strom versorgt.

Hinweise zum Lautsprecheranschluß

- Schalten Sie das Gerät aus, bevor Sie die Lautsprecher anschließen.
- Verwenden Sie Lautsprecher mit einer Impedanz zwischen 4 und 8 Ohm und ausreichender Belastbarkeit. Ansonsten können die Lautsprecher beschädigt werden.
- Verbinden Sie die Lautsprecheranschlüsse nicht mit dem Wagenchassis, und verbinden Sie auch nicht die Anschlüsse des rechten mit denen des linken Lautsprechers.
- Versuchen Sie nicht, Lautsprecher parallel anzuschließen.
- An die Lautsprecheranschlüsse dieses Geräts dürfen nur Passivlautsprecher angeschlossen werden. Schließen Sie keine Aktivlautsprecher (Lautsprecher mit eingebauten Verstärkern) an, da diese sonst beschädigt werden können.

Opmerkingen bij aansluitingsvoorbeeld

Opmerking betreffende de aansluitsnoeren

- De voedingskabel (blauw) van de elektrisch bediende antenne levert +12V gelijkstroom wanneer u de tuner aanschakelt of de functie ATA (Automatic Tuner Activation), AF (Alternative Frequency) of TA (Traffic Announcement) activeert.
- Met dit apparaat is het niet mogelijk een automatische antenne zonder relaishuis te gebruiken.

Opgelet

Indien u een elektrische antenne heeft zonder relaiskast, kan het aansluiten van deze eenheid met het bijgeleverde netsnoer ⑧ de antenne beschadigen.

Instandhouden van het geheugen

Zolang de gele stroomdraad is aangesloten, blijft de stroomvoorziening van het geheugen intact, ook wanneer het contact van de auto wordt uitgeschakeld.

Opmerkingen betreffende het aansluiten van de luidsprekers

- Zorg dat het apparaat is uitgeschakeld, alvorens de luidsprekers aan te sluiten.
- Gebruik luidsprekers met een impedantie van 4 tot 8 Ohm en let op dat die het vermogen van de versterker kunnen verwerken. Als dit wordt verzuimd, kunnen de luidsprekers ernstig beschadigd raken.
- Verbind in geen geval de aansluitingen van de luidsprekers met het chassis van de auto en sluit de aansluitingen van de rechter en linker luidspreker niet op elkaar aan.
- Probeer nooit de luidsprekers parallel aan te sluiten.
- Sluit geen actieve luidsprekers (met ingebouwde versterkers) aan op de luidspreker-aansluiting van dit apparaat. Dit zal leiden tot beschadiging van de actieve luidsprekers. Sluit dus altijd uitsluitend luidsprekers zonder ingebouwde versterker aan.

Note sui collegamenti

Note sui cavi di controllo

- Il cavo di controllo dell'antenna elettrica (blu) fornisce corrente continua +12 V CC quando si accende il sintonizzatore o quando si attiva la funzione ATA (attivazione automatica sintonizzatore), AF (frequenza alternativa) o TA (notiziario sul traffico).
- Non è possibile usare un'antenna elettrica senza scatola a relè con questo apparecchio.

Avvertenza

Quando si collega l'apparecchio con il cavo di alimentazione in dotazione ⑧, si potrebbe danneggiare l'antenna elettrica se questa non ha la scatola di relè.

Collegamento per la conservazione della memoria

Quando il cavo di ingresso alimentazione giallo è collegato, viene sempre fornita alimentazione al circuito di memoria anche quando la chiavetta a accensione è spenta.

Note sul collegamento dei diffusori

- Prima di collegare i diffusori spegnere l'apparecchio.
- Usare diffusori di impedenza compresa tra 4 e 8 ohm e con capacità di potenza adeguata, altrimenti i diffusori potrebbero venir danneggiati.
- Non collegare i terminali del sistema diffusori al telaio dell'auto e non collegare i terminali del diffusore destro a quelli del diffusore sinistro.
- Non collegare i diffusori in parallelo.
- Non collegare alcun diffusore attivo (con amplificatore incorporato) ai terminali dei diffusori dell'apparecchio perché si potrebbero danneggiare i diffusori attivi. Assicurarsi di collegare diffusori passivi a questi terminali.

Примечания к примеру подсоединения

О проводах управления

- По (синему) проводу питания антенны с электрическим приводом осущестелятся подача постоянного тока напряжением +12 вольт при включении Вами радиоприемника или задействовании функций ATA (автоматическая активация приемника), AF (альтернативные частоты), TA (дорожные сообщения).
- Электроприводная антенна, не снабженная релейным блоком, с данной магнитолой использоваться не может.

Предостережение

Если Вы используете электроприводную антенну без релейного блока, подсоединение данной магнитолы посредством прилагаемого шнура питания ⑧ может привести к повреждению антенны.

Подсоединение для поддержки памяти

Когда к магнитоле подсоединен желтый электрический провод, блок памяти будет постоянно получать питание, даже при выключенном зажигании.

О подсоединении громкоговорителей

- Прежде чем подсоединить громкоговорители, выключите магнитолу.
- Используйте громкоговорители с полным сопротивлением 4-8 Ом, обладающие способностью принимать достаточно мощный сигнал. В противном случае они могут быть повреждены.
- Не подсоединяйте контактные гнезда громкоговорителей к шасси автомобиля и не соединяйте гнезда правого громкоговорителя с гнездами левого.
- Не пытайтесь подсоединить громкоговорители параллельно.
- Не подсоединяйте к гнездам для громкоговорителей на магнитоле какие бы то ни было активные громкоговорители (со встроенными усилителями), поскольку это может привести к повреждению последних. Убедитесь в том, что подсоединяемые громкоговорители относятся к пассивному типу.

Schémas de connexion / Anschlußdiagramm / Aansluitschema / Schema di collegamento / Схема подсоединения

Appareils utilisés dans les illustrations (non fournis)

In Abbildungen dargestellte Geräte (nicht mitgeliefert)

Apparatuur gebruikt voor illustratiedoeleinden (niet meegeleverd)

Apparecchiatura utilizzata nelle illustrazioni (non in dotazione)

Аппаратурe, фигурирующая в иллюстрациях (не прилагается)



Haut-parleur avant
Frontlautsprecher
Voorluidspreker
Diffusori anteriori
Передний громкоговоритель



Haut-parleur arrière
Hecklautsprecher
Achterluidspreker
Diffusori posteriori
Задний громкоговоритель



Amplificateur de puissance
Endverstärker
Eindversterker
Amplificatore di potenza
Усилитель



Changeur de CD/MD
CD/MD-Wechsler
CD/MD-wisselaar
Cambia CD/MD
Проигрыватель CD/MD

Dans le cas du raccordement de deux changeurs ou plus, le sélecteur de source XA-C30 (optionnel) est indispensable.

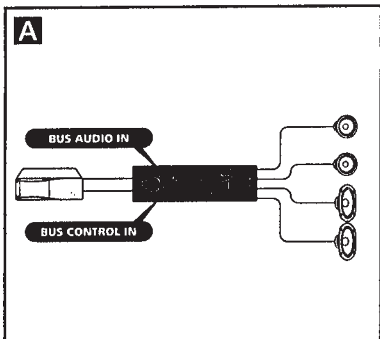
Zum Anschließen von zwei oder mehr Wechslern wird der gesondert erhältliche Signalquellenwahler XA-C30 benötigt.

Om twee of meer wisselaars aan te sluiten, hebt u de geluidsbronkiezer XA-C30 (optioneel) nodig.

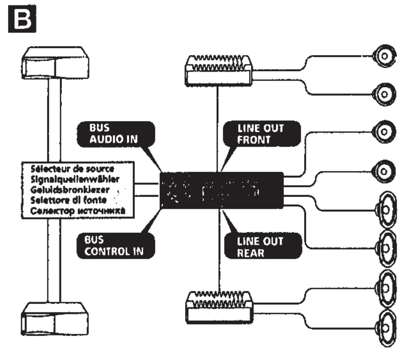
Per collegare due o più cambia CD o MD, si deve utilizzare il selettore di fonte XA-C30 (opzionale).

Для подсоединения двух или более проигрывателей компакт-дисков необходим селектор источника XA-C30 (в комплект не входит).

A



B



Remarques
- *Raccordez d'abord le fil de masse avant de connecter l'amplificateur.*
- *Si vous raccordez un amplificateur de puissance et que vous n'utilisez pas l'amplificateur intégré, le bip sonore est désactivé.*

Hinweise
- *Schließen Sie unbedingt zuerst das Massekabel an, bevor Sie den Verstärker anschließen.*
- *Wenn Sie einen gesondert erhältlichen Endverstärker anschließen und den integrierten Verstärker nicht benutzen, wird der Signalton deaktiviert.*

Opmerkingen
- *Sluit eerst de massakabel aan alvorens de versterker aan te sluiten.*
- *Als u een los verkrijgbare vermogensversterker aansluit en de ingebouwde versterker niet gebruikt, is de pieptoon uitgeschakeld.*

Note
- *Assicurarsi di collegare il cavo di terra, prima di collegare l'apparecchio all'amplificatore.*
- *Se si collega un amplificatore di potenza in dotazione e non si utilizza l'amplificatore incorporato, il segnale acustico verrà disattivato.*

Примечания
- *Прежде чем подключать магнитолу к усилителю, обязательно подсоедините провод заземления.*
- *Если Вы используете не встроенный усилитель, а дополнительный усилитель, звуковой сигнал будет отключен.*

Installation

Remarques
- *Choisissez soigneusement l'endroit de montage afin que le satellite de commande n'interfère pas avec les commandes de la voiture.*
- *N'installez pas le satellite de commande dans un endroit qui risque de compromettre la sécurité du passager avant de quelque façon que ce soit.*
- *Lors de l'installation du satellite de commande, veillez à ne pas endommager les câbles électriques, etc., situés de l'autre côté de la surface de montage.*
- *Evitez d'installer le satellite de commande là où il risque d'être soumis à des températures élevées comme sous le rayonnement direct du soleil ou à côté d'une conduite de chauffage, etc.*

Installation des Joystick

Hinweise
- *Wählen Sie den Montageort sorgfältig aus, so daß der Joystick beim Fahren nicht im Wege ist.*
- *Montieren Sie den Joystick nicht an einer Stelle, an der er eine Gefahr für den Beifahrer auf dem Vordersitz darstellen könnte.*
- *Achten Sie bei der Montage des Joystick darauf, die Elektrokabel an der anderen Seite der Montagefläche nicht zu beschädigen.*
- *Montieren Sie den Joystick nicht an einer Stelle, an der er hohen Temperaturen, zum Beispiel direktem Sonnenlicht oder der Warmluft aus der Wagenheizung, ausgesetzt ist.*

Montage

Opmerkingen
- *Ga zorgvuldig te werk bij het kiezen van een geschikte montagepositie zodat de bedieningssatelliet u nooit hindert bij het rijden.*
- *Installeer de bedieningssatelliet nooit op een plaats waar hij de veiligheid van de (voor)passagier in gevaar kan brengen.*
- *Bij het installeren van de bedieningssatelliet moet u erop letten dat u de elektrische bedrading en dergelijke aan de andere kant van het montagevlak niet beschadigt.*
- *Installeer de bedieningssatelliet niet op plaatsen waar hij blootstaat aan hoge temperaturen, bijvoorbeeld door rechtstreekse zonnestraling of warme lucht afkomstig van de verwarming, enz.*

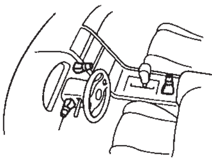
Installazione

Note
- *Ga zorgvuldig te werk bij het kiezen van een geschikte montagepositie zodat de bedieningssatelliet u nooit hindert bij het rijden.*
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- *Installeer de bedieningssatelliet niet op plaatsen waar hij blootstaat aan hoge temperaturen, bijvoorbeeld door rechtstreekse zonnestraling of warme lucht afkomstig van de verwarming, enz.*

Монтаж поворотного рожкаБ дистанционного управления (ДУ)

Примечания
- *Место для монтажа рожка ДУ следует выбирать с особой тщательностью, для того чтобы он не мешал управлению автомобилем.*
- *Не устанавливайте рожок ДУ в таких местах, где он мог бы каким-либо образом поставить под угрозу безопасность (сидящего впереди) пассажира.*
- *При установке рожка ДУ следите за тем, чтобы не повредить электропроводку и другие элементы конструкции автомобиля, расположенные на обратной стороне монтажной поверхности.*
- *Не устанавливайте рожок ДУ в таких местах, где он может подвергнуться воздействию высокой температуры, создаваемой прямыми солнечными лучами, горячим воздухом из обогревателя салона и т.п.*

Exemple de montage
Beispiel für die Montage
Montagevoorbeeld
Esempio di posizione di montaggio
Пример выбора места для монтажа



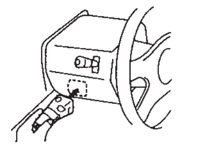
1 **Choisissez la position de montage exacte du satellite de commande et nettoyez la surface de montage.**
Les souillures et l'huile altèrent le pouvoir adhérent de l'adhésif double face.

Wählen Sie die Stelle aus, an der Sie den Joystick montieren wollen, und reinigen Sie dann die Montagefläche.
Staub oder Fettspuren beeinträchtigen die Haftung des doppelseitigen Klebebandes.

Kies de exacte installatieplaats voor de bedieningssatelliet en maak vervolgens het montagevlak schoon.
Vuil of vet tasten het kleefvermogen van het dubbelzijdige plakband aan.

Scegliere la posizione esatta di montaggio del telecomando a rotazione, quindi pulire la superficie di montaggio.
La sporcizia o l'unto possono pregiudicare la tenuta del nastro biadesivo.

Точно наметьте место для установки рожка ДУ и зачистите поверхность, на которой он будет монтироваться.
Учтите, что грязь или масло ослабляют липучесть двусторонней крепежной ленты.



2 **Marquez la position pour la vis fournie.**
Utilisez l'orifice de vissage du support de montage ⑩ pour marquer la position.

Si vous ne parvenez pas à ajuster aisément le support de montage ⑩, découpez le support de montage ⑩ de façon à ce qu'il s'adapte à la colonne de direction.

Markieren Sie die Stelle zum Anbringen der mitgelieferten Schraube.
Verwenden Sie dazu die Bohrung im Montageteil ⑩.

Wenn das Montageteil ⑩ nicht auf die Abdeckung der Lenkradsäule paßt, schneiden Sie es bitte zurecht.

Markeer een bevestigingspunt voor de meegeleverde schroef.
Markeer de positie aan de hand van het schroefgat in de steun ⑩.

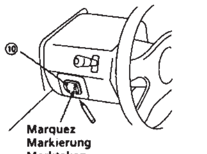
Als het bevestigingselement ⑩ niet goed past, moet u het overtollige gedeelte overtollige gedeelte van het bevestigingspunt ⑩ afsnijden afsnijden zodat het wel in de stuurkolomkap past.

Posizione di montaggio per la vite in dotazione.
Utilizzare il foro della vite sulla staffa di montaggio ⑩ per segnare la posizione.

Se non è possibile installare la staffa di montaggio ⑩ facilmente, tagliare la staffa di montaggio ⑩ per adattarla alla copertura del piantone di guida.

Отметьте место, куда будет вкручен прилагаемый в комплекте к рожку ДУ винт.
Используйте для этого предназначенное для винта отверстие на монтажной плате ⑩.

Если при установке монтажной платы ⑩ Вы столкнетесь с трудностями нестыковки размеров, обрежьте плату ⑩ так, чтобы она по конфигурации совпала с кожухом рулевой колонки.



Marquez
Markierung
Merkteken
Contrassegno di montaggio
Метка

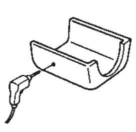
3 **Déposez la garniture de la colonne de direction et percez un trou de 2 mm de diamètre à l'endroit que vous avez marqué.**

Nehmen Sie die Abdeckung der Lenkradsäule ab, und bohren Sie an der Stelle, die Sie gerade markiert haben, ein Loch von 2 mm Durchmesser.

Verwijder de stuurkolomkap en boor een gat van 2 mm op de gemarkeerde positie.

Rimuovere il coperchio del piantone di guida e praticare un foro di 2 mm di diametro nella posizione contrassegnata.

Снимите кожух рулевой колонки и просверлите в нем отверстие диаметром 2 мм в отмеченном Вами месте.



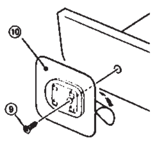
4 **Chauffez la surface de montage et l'adhésif double face sur le support de montage ⑩ à une température comprise entre 20 et 30 °C et fixez le support de montage sur la surface de montage en exerçant une pression uniforme. Vissez-le ensuite à l'aide de la vis fournie ⑨.**
Collez un morceau de bande adhésive résistante de l'autre côté de la surface de montage pour recouvrir l'extrémité saillante de la vis de façon à qu'elle ne puisse entrer en contact avec les câbles électriques, etc., à l'intérieur de la colonne de direction.

Erwärmen Sie die Montagestelle und das doppelseitige Klebeband am Montageteil ⑩ auf eine Temperatur von 20 bis 30 °C, und drücken Sie dann das Montageteil mit gleichmäßigem Druck auf die Montagestelle. Befestigen Sie es dann mit der mitgelieferten Schraube ⑨.
Überkleben Sie die herausstehende Spitze der Schraube an der Rückseite der Montagestelle mit sehr dickem und festem Klebeband o. ä., damit durch die Schraubenspitze keine Stromkabel usw. innerhalb der Lenksäule beschädigt werden.

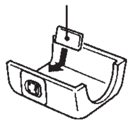
Warm het bevestigingsvlak en de dubbelzijdige kleefband op de steun ⑩ op tot een temperatuur van 20 à 30 °C en plaats de steun op het bevestigingsvlak door gelijkmatig aan te drukken. Schroef hem vervolgens vast met de meegeleverde schroef ⑨.
Breng een stuk tape of iets dergelijks aan op de andere kant van het bevestigingsvlak om te voorkomen dat het uitstekende schroefpunt in contact komt met de elektrische bedrading en dergelijke binnenin de stuurkolom.

Riscaldare la superficie di montaggio e il nastro biadesivo sulla staffa di montaggio ⑩ ad una temperatura compresa tra 20 °C e 30 °C. Applicare la staffa di montaggio sulla superficie di montaggio esercitando una pressione omogenea, Quindi fissarla in posizione con la vite in dotazione ⑨.
Applicare del nastro adesivo resistente ecc. sul lato opposto della superficie di montaggio in modo da coprire la parte sporgente della vite. In questo modo si eviterà che la vite interferisca con i cavi elettrici ecc. all'interno del piantone di guida.

Нагрейте поверхность места установки и двустороннюю крепежную ленту на монтажной плате ⑩ до температуры между 20°C и 30°C и равномерным нажатием прикрепите монтажную плату к поверхности места установки. Затем зафиксируйте плату при помощи прилагаемого винта ⑨.
Прилепите кусочек прочной изоляционной ленты или аналогичного крепежного средства к обратной стороне монтажной поверхности, чтобы прикрыть выступающий кончик винта и не допустить повреждения им электропроводки и т.п. внутри рулевой колонки.



Bande adhésive résistante, etc.
Sehr festes Klebeband o. ä.
Sterke kleefband of dergelijke
Nastro adesivo resistente.
Прочная изоляционная лента и т.п.



5 **Après avoir remonté le couvercle de la colonne de direction, fixez le satellite de commande sur le support de montage en alignant les quatre orifices pratiqués à la base du satellite sur les quatre ergots du support de montage et faites coulisser le satellite de commande jusqu'à ce qu'il s'encliquette dans sa position définitive comme illustré.**
Remarque
Si vous montez le satellite de commande sur la colonne de direction, assurez-vous que l'extrémité saillante de la vis à l'intérieur de la colonne de direction ne puisse gêner la rotation de l'axe, les composants opérationnels des commutateurs ou les câbles électriques, etc., à l'intérieur de la colonne de direction.

Bringen Sie nun die Abdeckung der Lenkradsäule wieder an, und befestigen Sie dann den Joystick auf dem Montageteil, indem Sie die vier Aussparungen an der Unterseite des Joystick an den vier Haken auf dem Montageteil ausrichten und den Joystick daraufschieben, bis er einrastet, wie auf der Abbildung zu sehen.
Hinweis
Wenn Sie den Joystick an der Lenksäule anbringen, achten Sie darauf, daß die vorstehende Spitze der Schraube an der Innenseite der Lenksäule nicht die Bewegungen des Lenkmechanismus oder die Funktion der Schalter in der Lenksäule behindert bzw. die Stromkabel in der Lenksäule beschädigt.

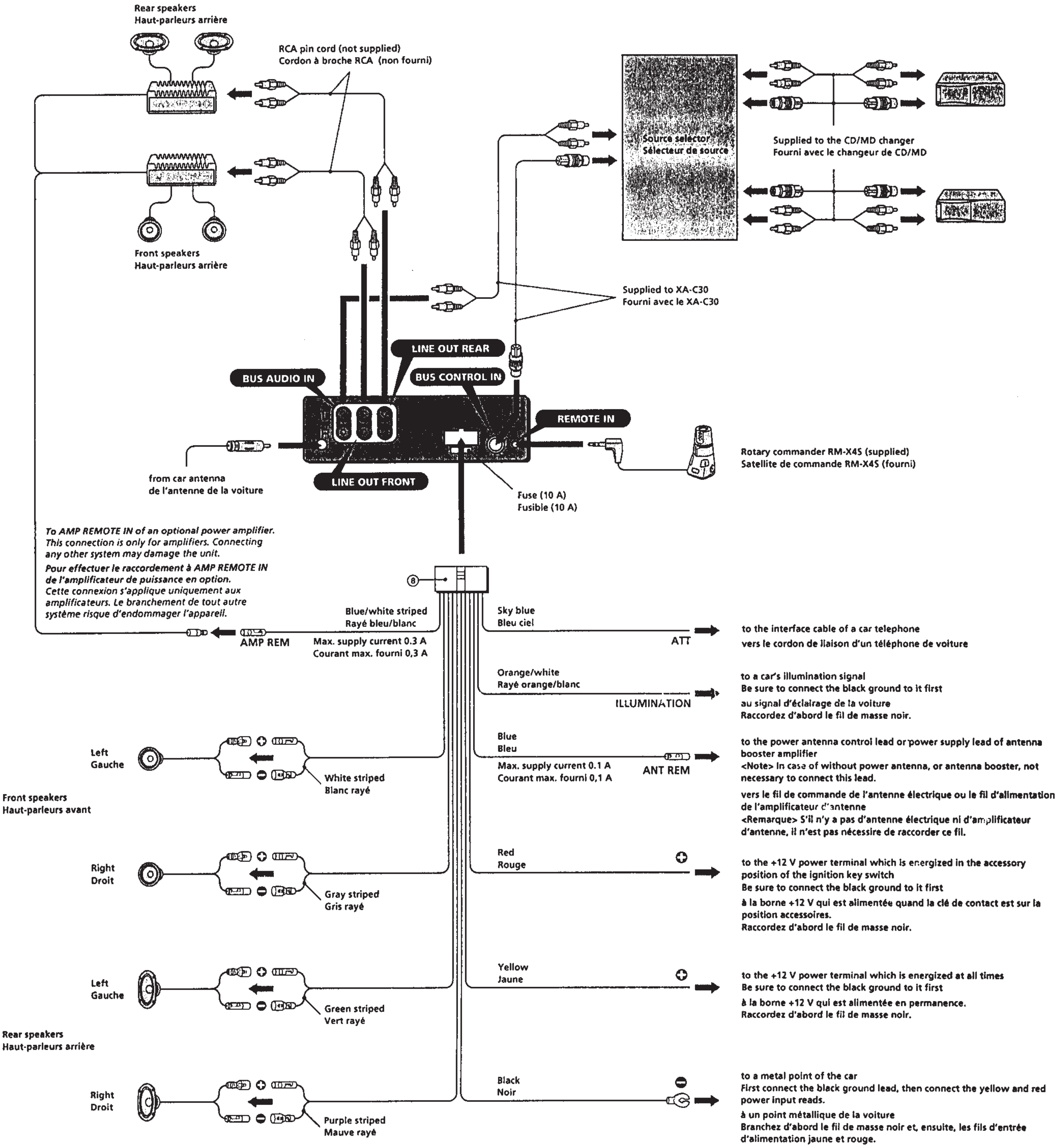
Plaats de stuurkolombekleding terug en bevestig de bedieningssatelliet op het montage-accessoire door de vier gaten onderaan de commander te laten samenvallen met de vier bevestigingsklemmen op het montage-accessoire en verschuif de commander tot hij op zijn plaats klikt zoals de illustratie laat zien.
Opmerking
Bij het monteren van de bedieningssatelliet op de stuurkolom, moet u ervoor zorgen dat het uitstekende punt van de schroef aan de binnenkant van de stuurkolom de stuurstang, schakelaars, elektrische bedrading enzovoort in de stuurkolom niet hindert.

Dopo aver rimontato il coperchio del piantone di guida, montare il telecomando a rotazione allineando i quattro fori sul fondo del telecomando a rotazione ai quattro fermi sulla staffa di montaggio e facendo scorrere il telecomando a rotazione fino a che non si blocca in posizione, come illustrato in figura.
Nota
Se si installa il telecomando a rotazione sul piantone di guida, assicurarsi che la parte sporgente della vite sulla parte interna al piantone di guida non intralci o interferisca in alcun modo con il movimento dell'albero, con le parti operative degli interruttori o con i cavi elettrici ecc. all'interno del piantone di guida.

Установив обратно кожух рулевой колонки, присоедините рожок ДУ к монтажной плате, совместив четыре отверстия на тыльной поверхности рожка с четырьмя зажимами на монтажной плате и вдвинув рожок вглубь до точки фиксации, как это показано на иллюстрации.
Примечание
Если Вы прикрепляете рожок ДУ к рулевой колонке, следите за тем чтобы выступающий кончик винта на внутренней поверхности колонки никоим образом не препятствовал и не мешал свободному ходу рулевого вала и работе переключателей, а также чтобы он не повредил электропроводку или иные элементы конструкции внутри колонки.



Connection Example
Exemple de connection
(C7970)



Notes on the control leads
- *The power antenna control lead (blue) supplies +12 V DC when you turn on the tuner.*
- *A power antenna without relay box cannot be used with this unit.*

Memory hold connection
When the yellow power input lead is connected, power will always be supplied to the memory circuit even when the ignition key is turned off.

Notes on speaker connection
- *Before connecting the speakers, turn the unit off.*
- *Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.*
- *Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.*
- *Do not attempt to connect the speakers in parallel.*
- *Do not connect any active speakers (with built-in amplifiers) to the speaker terminals of the unit. Doing so may damage the active speakers. Therefore, be sure to connect passive speakers to these terminals.*

Remarques sur les fils de contrôle
- *Le fil de contrôle de l'antenne électrique (bleu) fournit une tension continue de +12 V quand vous mettez l'appareil sous tension.*
- *Une antenne électrique sans boîtier de relais ne peut pas être utilisée avec cet appareil.*

Connexion pour la conservation de la mémoire
Lorsque le fil d'entrée d'alimentation jaune est connecté, le circuit de la mémoire est alimenté en permanence même si la clé de contact est sur la position d'arrêt.

Remarques sur la connexion des haut-parleurs
- *Avant de raccorder les haut-parleurs, mettre l'appareil hors tension.*
- *Utiliser des haut-parleurs ayant une impédance de 4 à 8 ohms et une capacité adéquate sous peine de les endommager.*
- *Ne pas raccorder les bornes du système de haut-parleurs au châssis de la voiture et ne pas connecter les bornes du haut-parleur droit à celles du haut-parleur gauche.*
- *Ne pas tenter de raccorder les haut-parleurs en parallèle.*
- *Ne pas raccorder des haut-parleurs actifs (avec amplificateurs intégrés) aux bornes de haut-parleur de l'appareil sous peine de les endommager. Veiller à raccorder des haut-parleurs passifs à ces bornes.*

(C7970R)

Exemple de raccordement

*1 *Remarque sur le raccordement de l'antenne*
Si votre antenne de voiture est de type ISO (organisation internationale de normalisation), utilisez l'adaptateur fourni ⑥ pour la raccorder.
Raccordez d'abord l'antenne de voiture à l'adaptateur fourni et, ensuite, à la prise d'antenne de l'appareil principal.
*2 *Cordon à broche RCA (non fourni)*

Anschlußbeispiel

*1 *Hinweis zum Anschließen der Antenne*
Wenn Ihre Fahrzeugantenne der ISO-Norm (ISO = International Organization for Standardization - Internationale Normungsgemeinschaft) entspricht, schließen Sie sie mit Hilfe des mitgelieferten Adapters ⑥ an.
Verbinden Sie zuerst die Fahrzeugantenne mit dem mitgelieferten Adapter, und verbinden Sie diesen dann mit der Antennenbuchse des Hauptgeräts.
*2 *Cinchkabel (nicht mitgeliefert)*

Voorbeeldaansluitingen

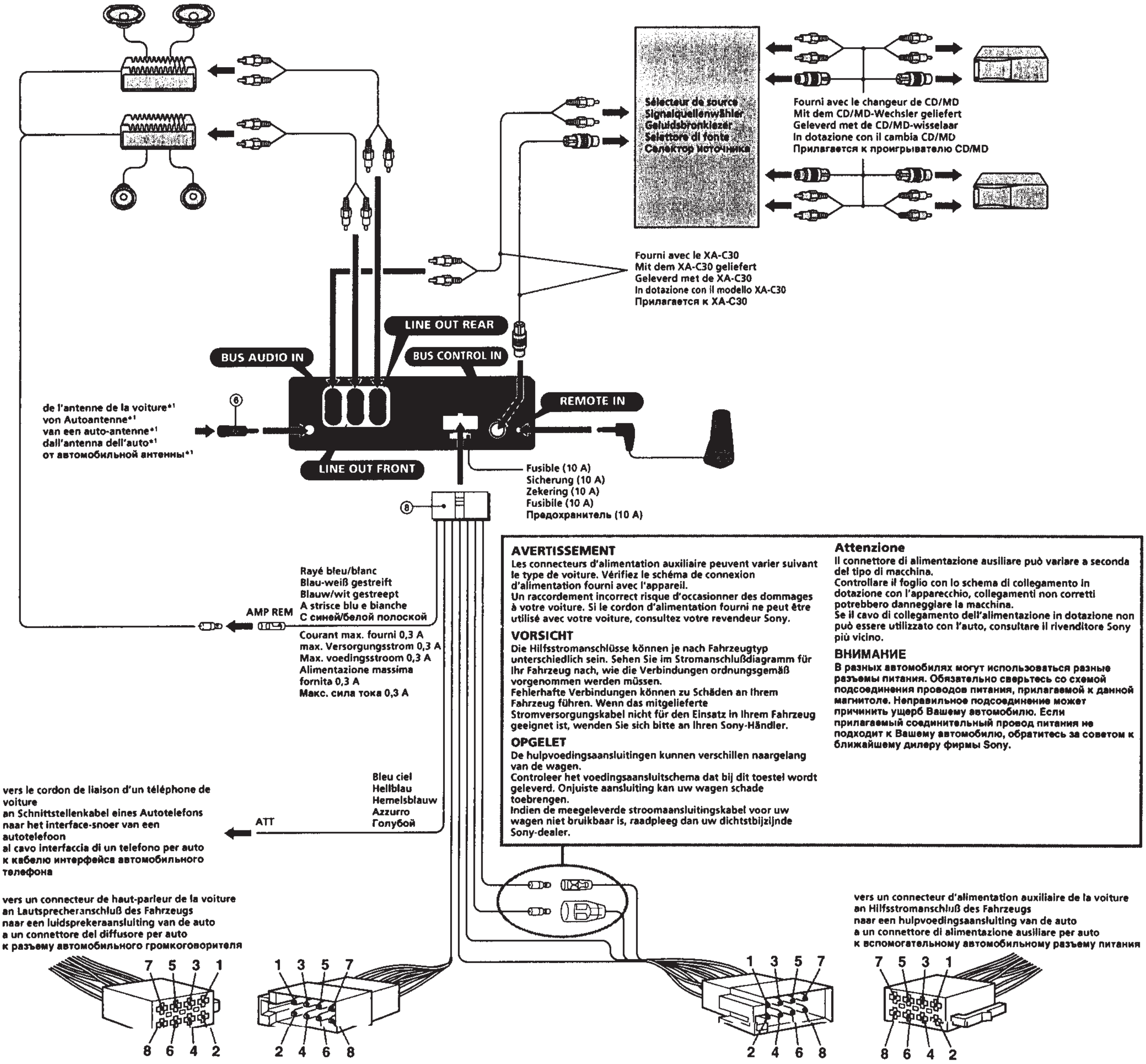
*1 *Opmerking bij de antenne-aansluiting*
Indien uw wagen is uitgerust met een antenne van het type ISO (International Organisation for Standardization), moet u die aansluiten met behulp van de meegeleverde adaptor ⑥.
Sluit eerst de auto-antenne aan op de meegeleverde adaptor en vervolgens de antennestekker op het hoofdtoestel.
*2 *Tulpstekkersnoer (niet bijgeleverd)*

Esempi di collegamento

*1 *Nota per il collegamento dell'antenna*
Se la vostra antenna della macchina è di tipo ISO (International Organization Standardization), utilizzare l'adattatore ⑥ in dotazione per collegarla.
Collegare prima l'antenna della macchina all'adattatore in dotazione, quindi collegarla alla presa dell'antenna dell'apparecchio principale.
*2 *Cavo a piedini RCA (non in dotazione)*

Пример подсоединения

*1 *Примечание о подсоединении антенны*
Если антенна в Вашем автомобиле относится к типу, утвержденному ISO (Международной организацией по стандартизации), используйте для ее подсоединения переходник ⑥.
Сначала подсоедините автомобильную антенну к прилагаемому переходнику, а затем - к антенному гнезду магнитолы.
*2 *Шнур с контактными штырьками RCA (не прилагается)*



AVERTISSEMENT
Les connecteurs d'alimentation auxiliaire peuvent varier suivant le type de voiture. Vérifiez le schéma de connexion d'alimentation fourni avec l'appareil.
Un raccordement incorrect risque d'occasionner des dommages à votre voiture. Si le cordon d'alimentation fourni ne peut être utilisé avec votre voiture, consultez votre revendeur Sony.

VORSICHT
Die Hilfsstromanschlüsse können je nach Fahrzeugtyp unterschiedlich sein. Sehen Sie im Stromanschlußdiagramm für Ihr Fahrzeug nach, wie die Verbindungen ordnungsgemäß vorgenommen werden müssen.
Fehlerhafte Verbindungen können zu Schäden an Ihrem Fahrzeug führen. Wenn das mitgelieferte Stromversorgungskabel nicht für den Einsatz in Ihrem Fahrzeug geeignet ist, wenden Sie sich bitte an Ihren Sony-Händler.

OPGELET
De hulpvoedingsaansluitingen kunnen verschillen naargelang van de wagen.
Controleer het voedingsaansluitschema dat bij dit toestel wordt geleverd. Onjuiste aansluiting kan uw wagen schade toebrengen.
Indien de meegeleverde stroomaansluitingskabel voor uw wagen niet bruikbaar is, raadpleeg dan uw dichtstbijzijnde Sony-dealer.

Attenzione
Il connettore di alimentazione ausiliare può variare a seconda del tipo di macchina.
Controllare il foglio con lo schema di collegamento in dotazione con l'apparecchio, collegamenti non corretti potrebbero danneggiare la macchina.
Se il cavo di collegamento dell'alimentazione in dotazione non può essere utilizzato con l'auto, consultare il rivenditore Sony più vicino.

ВНИМАНИЕ
В разных автомобилях могут использоваться разные разъемы питания. Обязательно сверьтесь со схемой подсоединения проводов питания, прилагаемой к данной магнитоле. Неправильное подсоединение может причинить ущерб Вашему автомобилю. Если прилагаемый соединительный провод питания не подходит к Вашему автомобилю, обратитесь за советом к ближайшему дилеру фирмы Sony.

1	Mauve Violett Paars Viola Фиолетовый	+	haut-parleur, arrière, droit Lautsprecher hinten rechts Luidspreker, achter, rechts Diffusore, posteriore, destro Громкоговоритель, задний, правый
2		-	haut-parleur, arrière, droit Lautsprecher hinten rechts Luidspreker, achter, rechts Diffusore, posteriore, destro Громкоговоритель, задний, правый
3	Gris Grau Grijs Grigio Серый	+	haut-parleur, avant, droit Lautsprecher vorne rechts Luidspreker, voor, rechts Diffusore, anteriore, destro Громкоговоритель, передний, правый
4		-	haut-parleur, avant, droit Lautsprecher vorne rechts Luidspreker, voor, rechts Diffusore, anteriore, destro Громкоговоритель, передний, правый
5	Blanc Weiß Wit Bianco Белый	+	haut-parleur, avant, gauche Lautsprecher vorne links Luidspreker, voor, links Diffusore, anteriore, sinistro Громкоговоритель, передний, левый
6		-	haut-parleur, avant, gauche Lautsprecher vorne links Luidspreker, voor, links Diffusore, anteriore, sinistro Громкоговоритель, передний, левый
7	Vert Grün Groen Verde Зеленый	+	haut-parleur, arrière, gauche Lautsprecher hinten links Luidspreker, achter, links Diffusore, posteriore, sinistro Громкоговоритель, задний, левый
8		-	haut-parleur, arrière, gauche Lautsprecher hinten links Luidspreker, achter, links Diffusore, posteriore, sinistro Громкоговоритель, задний, левый

Les positions de polarité négative 2, 4, 6 et 8 sont dotées de cordons rayés.
An den negativ gepolten Positionen (2, 4, 6 und 8) befinden sich gestreifte Adern.
De negatieve posities 2, 4, 6 en 8 hebben gestreepte kabels.
Le posizioni a polarità negativa 2, 4, 6 e 8 hanno cavi rigati.
Позиции отрицательной полярности 2, 4, 6 и 8 имеют провода с полосками.

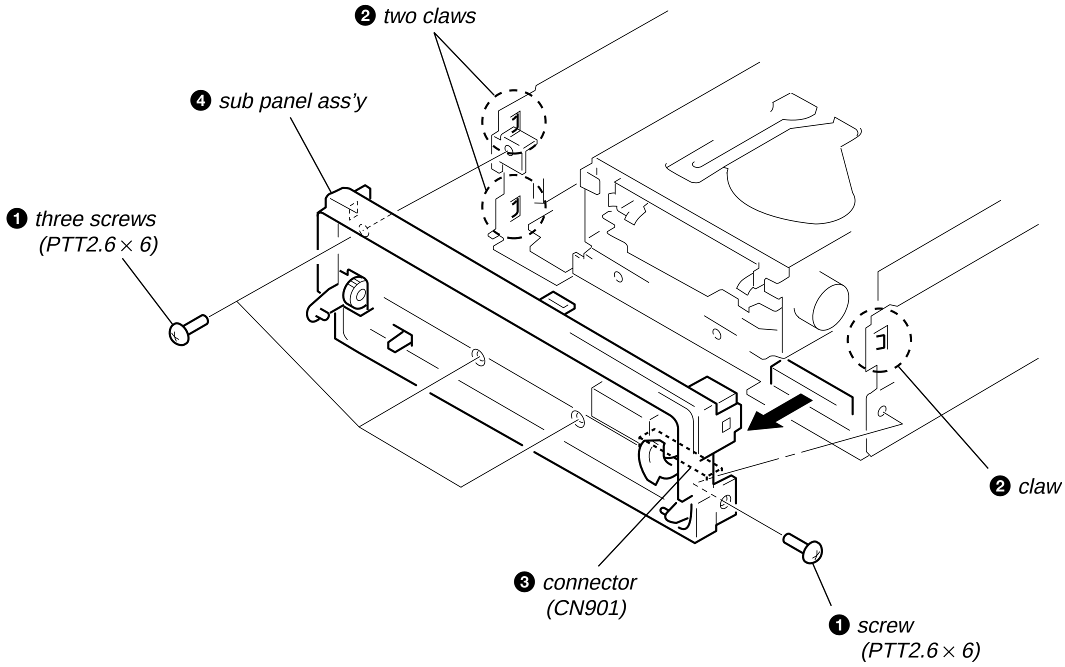
4	Jaune Gelb Geel Giallo Желтый	alimentation continue permanente Stromversorgung continu voeding alimentazione continua непрерывное поступление питания
5	Bleu Blau Blauw Blu Синий	antenne électrique Motorantenne automatische antenne comando dell'antenna elettrica антенная электрика
6	Rayé orange/blanc Orange-weiß gestreift Oranje/wit gestreept Arancione/blanco Оранжевый/белый	alimentation de l'éclairage commuté geschaltete Beleuchtungsstromversorgung geschakelde verlichting stroomvoorziening alimentazione a illuminazione commutata подача питания подсветки от зажигания
7	Rouge Rot Rood Rosso Красный	alimentation commutée geschaltete Stromversorgung geschakelde voeding alimentazione commutata включаемое питание
8	Noir Schwarz Zwart Nero Черный	masse Masse aarding terra земля

Les positions 1, 2 et 3 ne comportent pas de broches.
An Position 1, 2 und 3 befinden sich keine Stifte.
De posities 1, 2 en 3 hebben geen pins.
Le posizioni 1, 2 e 3 non hanno piedini.
Позиции 1, 2 и 3 не имеют контактных штырьков.

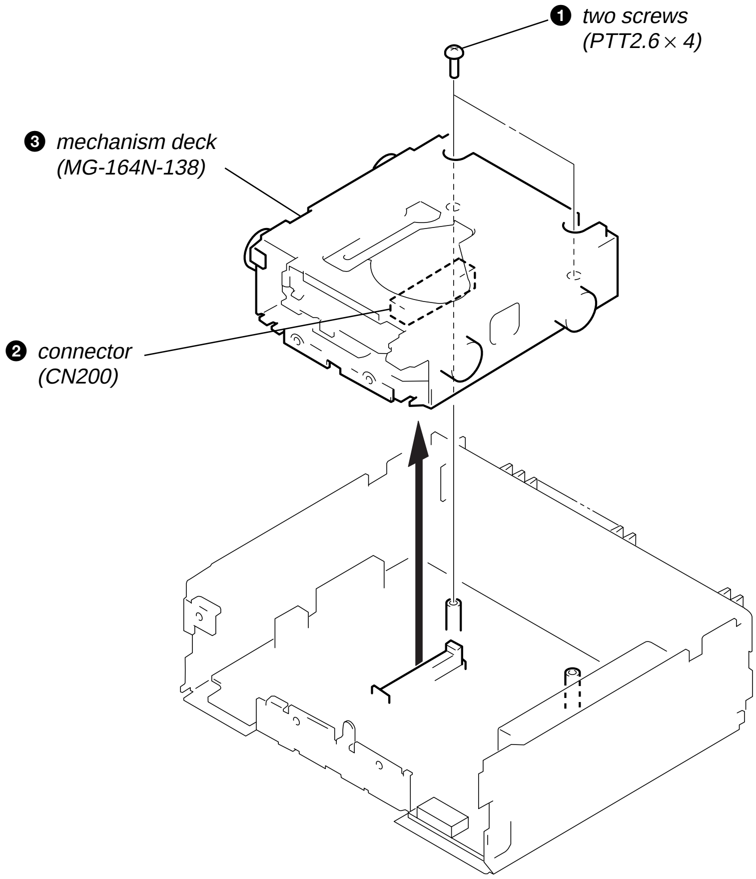
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

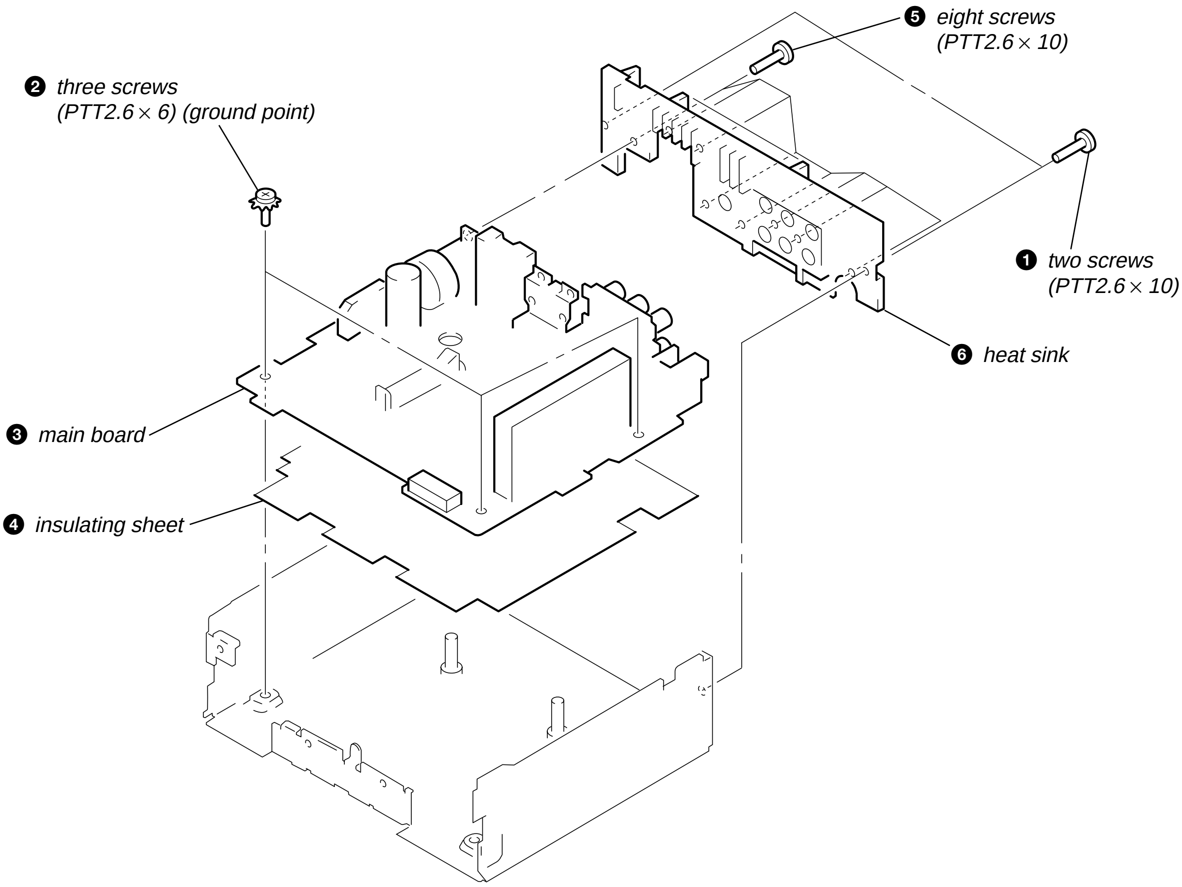
SUB PANEL ASS'Y



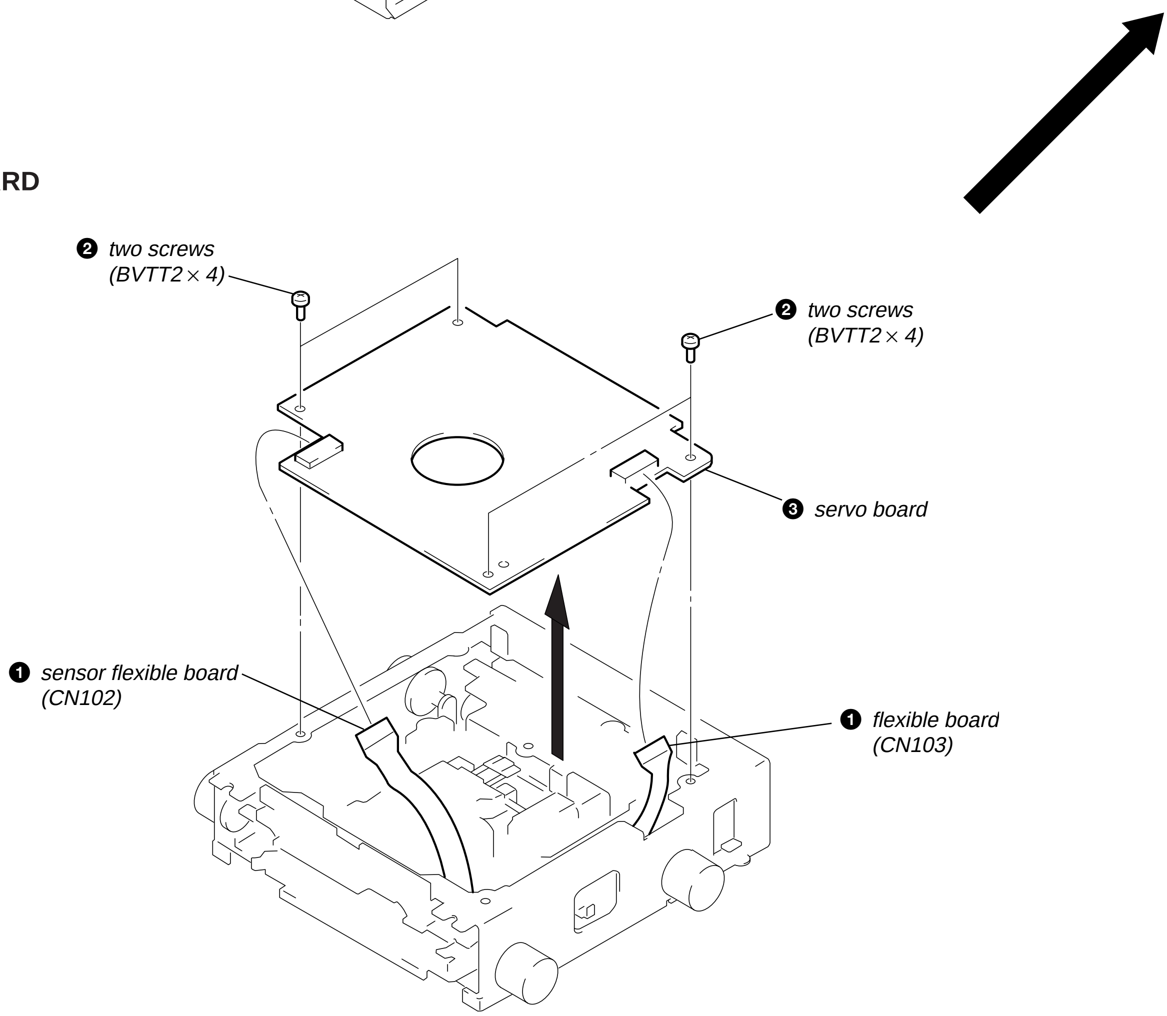
MECHANISM DECK (MG-164N-138)



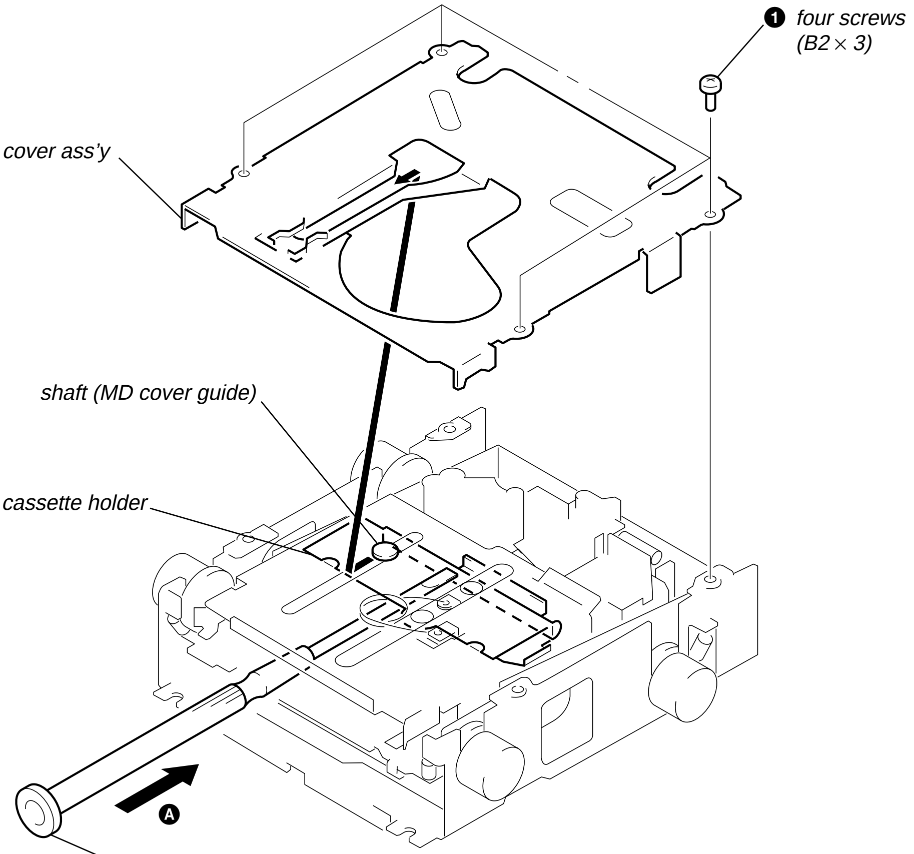
MAIN BOARD, HEAT SINK



SERVO BOARD



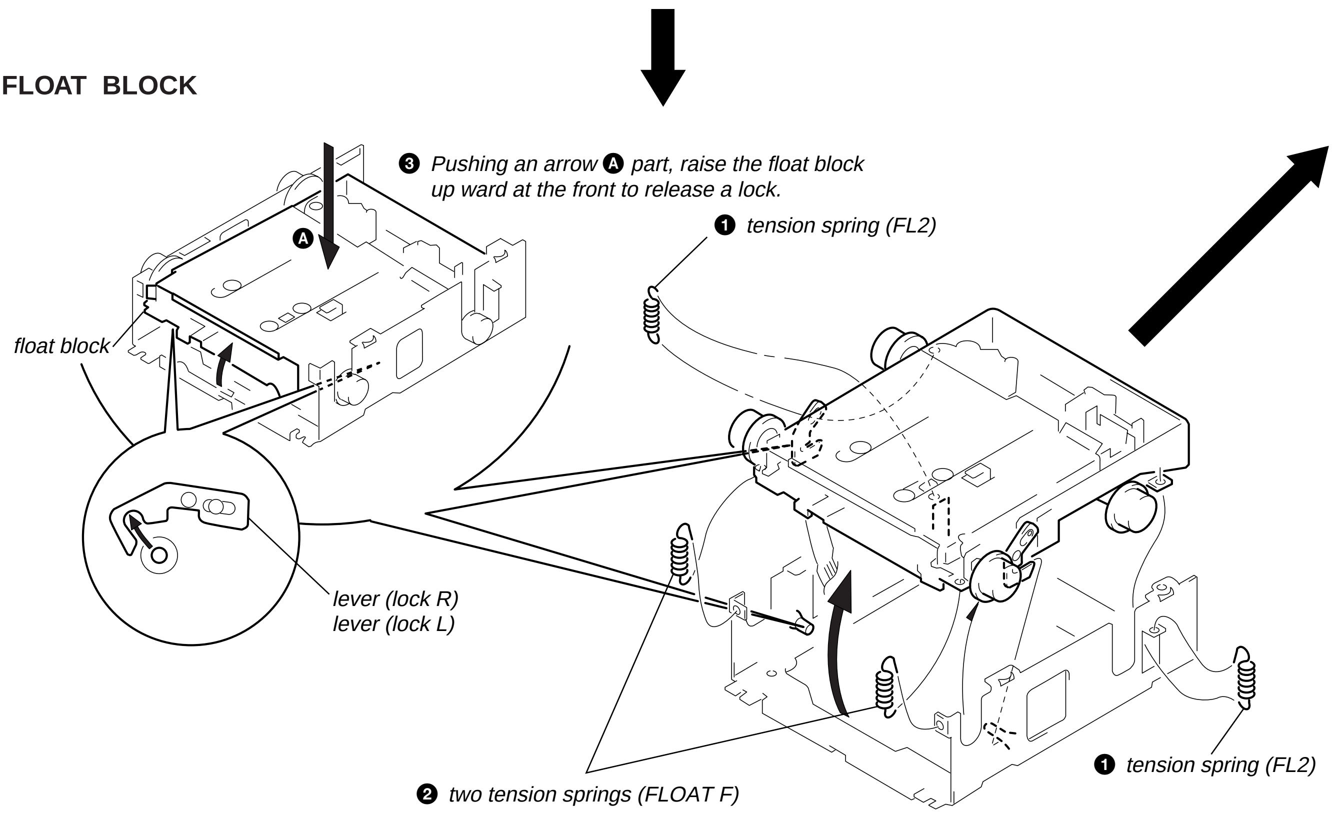
MD COVER ASS'Y



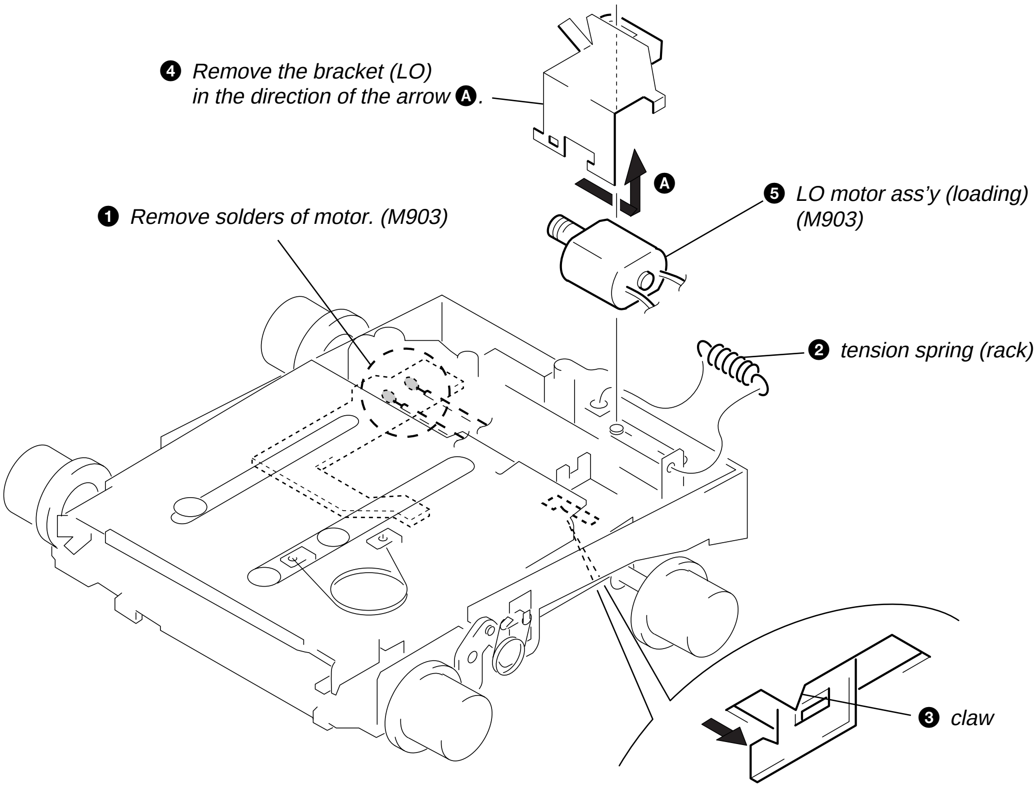
❷ Pushing the Cassette Holder toward the direction Ⓐ with a screwdriver, etc., disengage the Shaft (MD Cover Guide) from the slot in the MD Cover Ass'y.

Note: Take care not to scratch the Optiocal Pick-up when pushing the Cassette Holder with a screwdriver. etc.

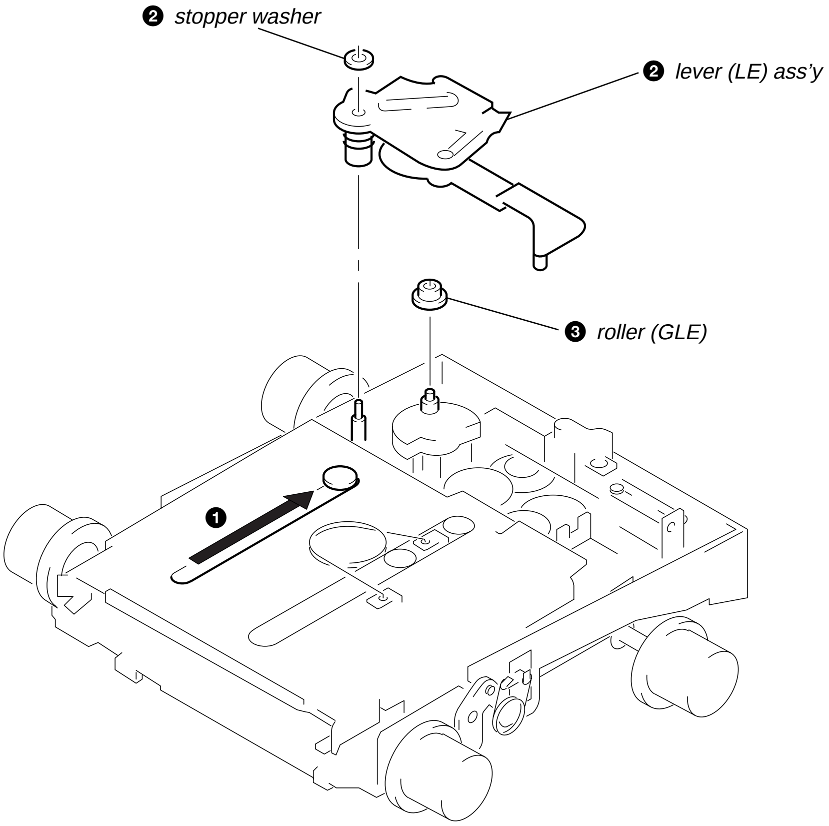
FLOAT BLOCK



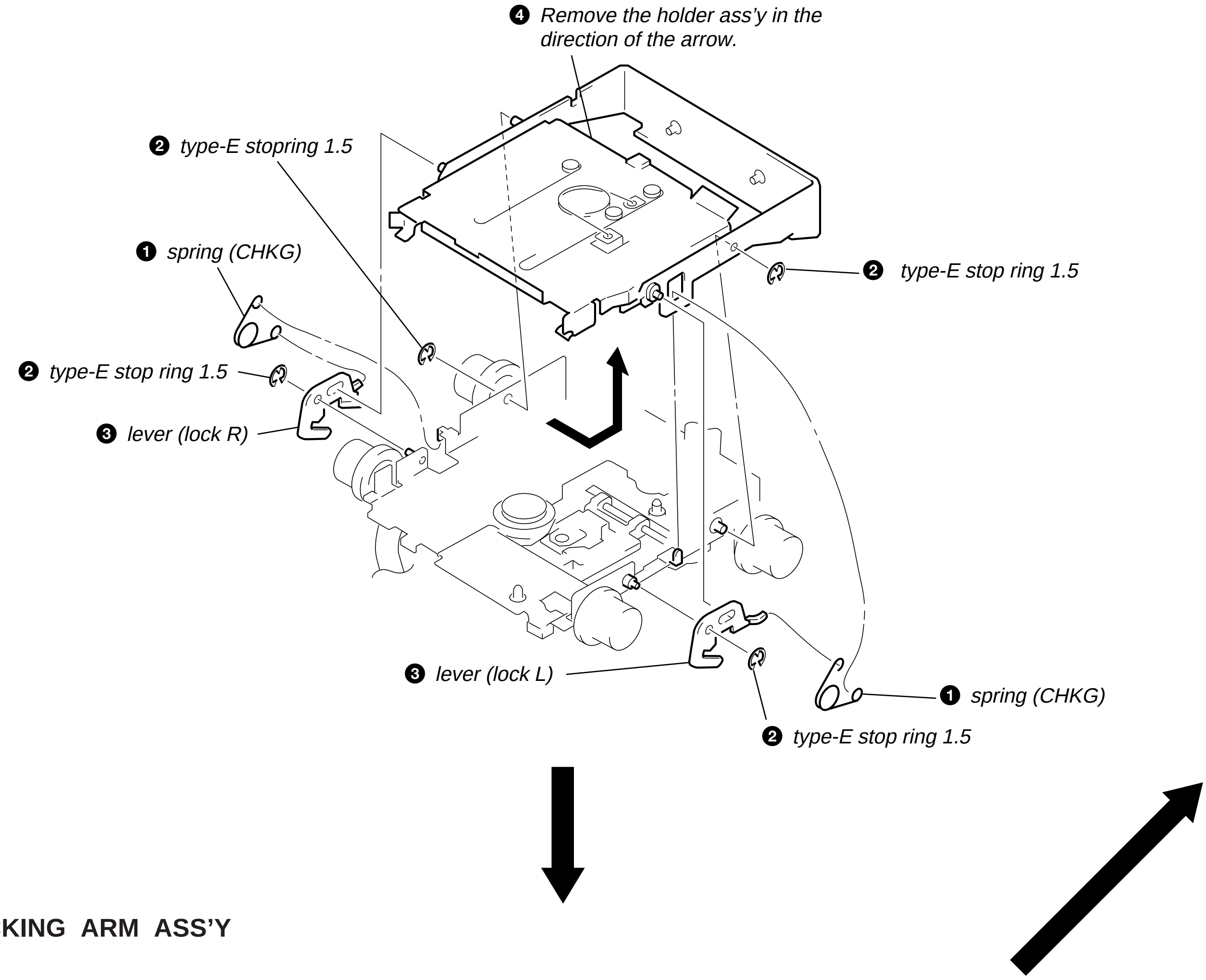
LO MOTOR ASS'Y (LOADING) (M903)



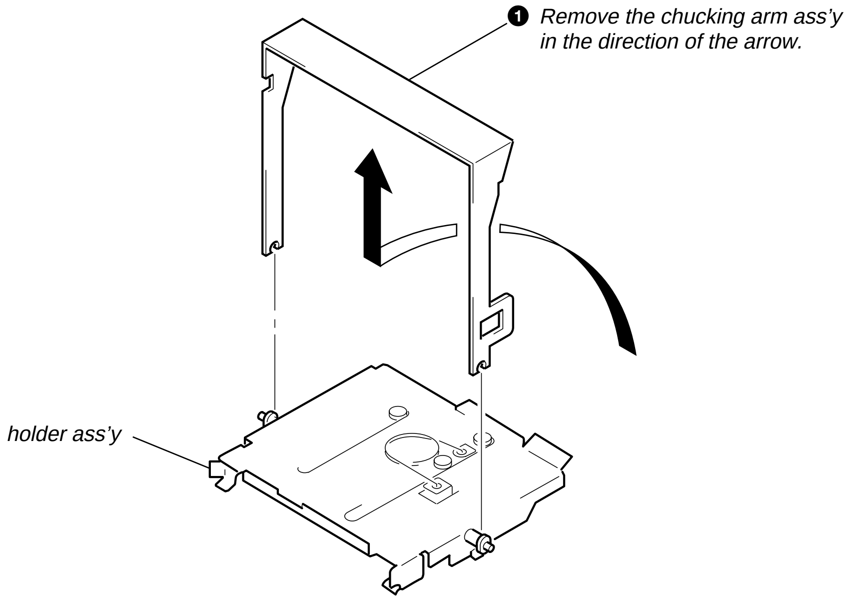
LEVER (LE) ASS'Y



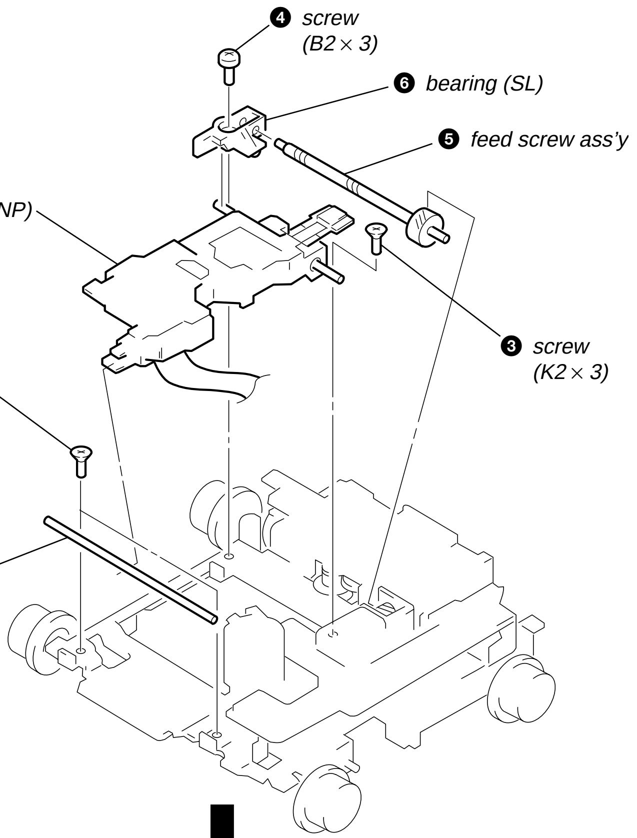
HOLDER ASS'Y



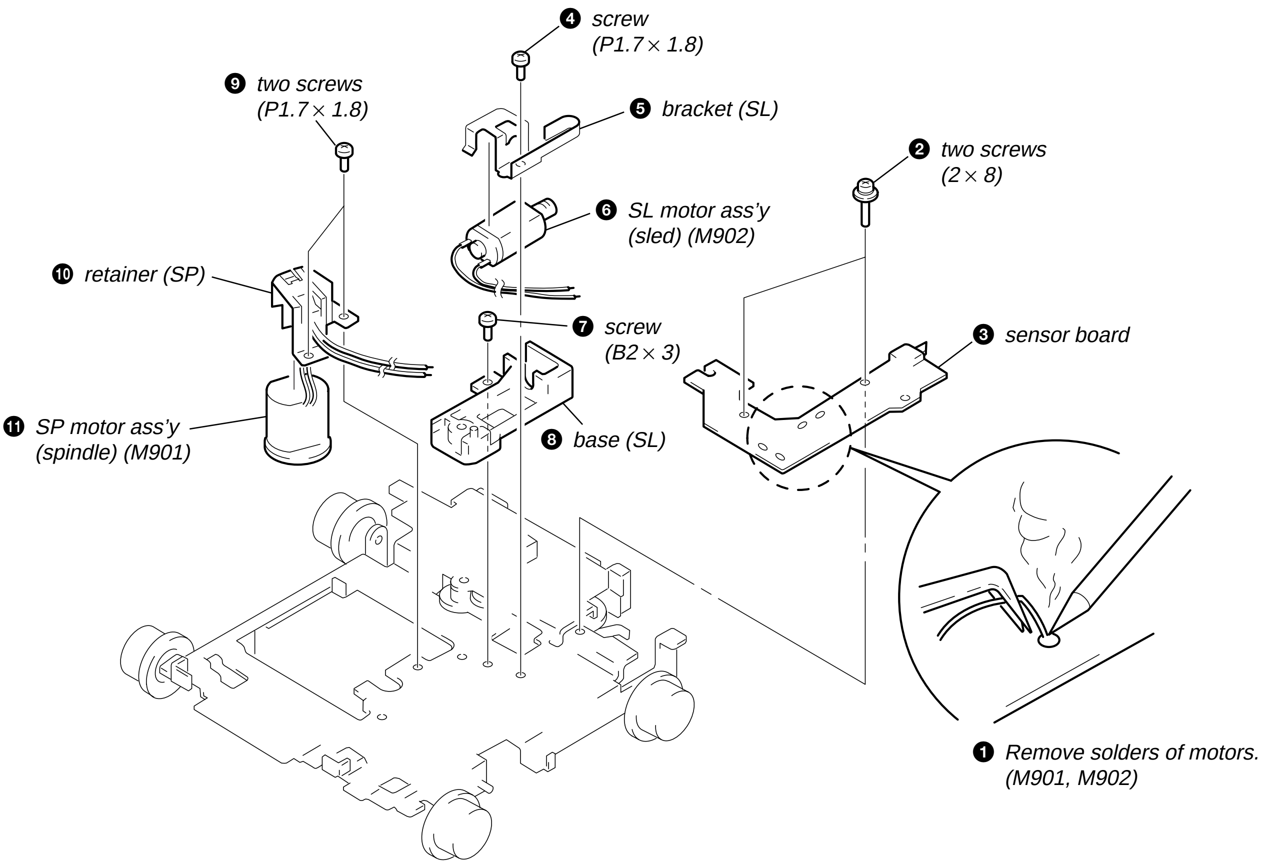
CHUCKING ARM ASS'Y



OPTICAL PICK-UP (KMS-241B/J1NP)



SL MOTOR ASS'Y (SLED) (M902), SP MOTOR ASS'Y (SPINDLE) (M901)



SECTION 3
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and AM (MW) Auto Scan/Stop Level adjustments can be performed easier than it in ordinary procedure.

<Set the Test Mode>

1. Turn ON the regulated power supply. (The clock is displayed)
   Note: Press the [OFF] button, if the clock is not displayed.
2. Push the preset [4] button.
3. Push the preset [5] button.
4. Press the preset [1] button for more than two seconds.
5. Then the display indicates all lights, the test mode is set.

<Release the Test mode>

1. Push the [OFF] button.

See the adjustment location from on page 22 for the adjustment.

MD SECTION

MD section adjustments are done automatically in this set.

TUNER SECTION

0 dB=1 µV

Cautions during repair
When the tuner unit is defective, replace it by a new one because its internal block is difficult to repair.

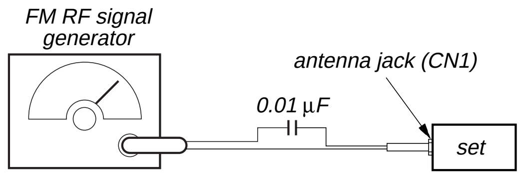
Note: Adjust the tuner section in the sequence shown below.

1. FM Auto Scan/Stop Level Adjustment
2. FM Stereo Separation Adjustment (MDX-C7970)
3. FM Stereo Separation Adjustment (Wide) (MDX-C7970R)
4. FM Stereo Separation Adjustment (Narrow) (MDX-C7970R)
5. FM RDS S-Meter Adjustment (MDX-C7970R)
6. AM (MW) Auto Scan/Stop Level Adjustment

FM Auto Scan/Stop Level Adjustment

Setting:

[SOURCE] button : FM
FREQUENCY SELECT switch : FM 200 k (E model)

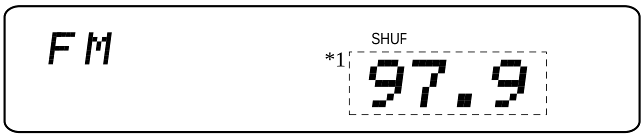


Carrier frequency : 97.9 MHz (MDX-C7970)
98.0 MHz (MDX-C7970R)
Output level : 22 dB (12.6 µV)
Mode : mono
Modulation : 1 kHz, 22.5 kHz deviation (30%)

Procedure:

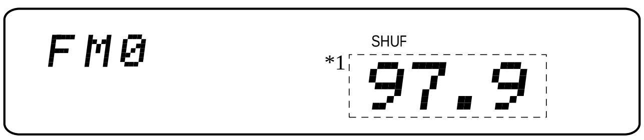
1. Set to the test mode.
2. Push the [SOURCE] button and set to FM.

Display



3. Adjust the volume RV2 on TU1 by turning clockwise untill "0" is shown next to "FM" on the display window, If "0" is already shown or the volume RV2 has been turned too far, turn it back counterclockwise untill "0" is disappeared once, then try this adjustment.

Display



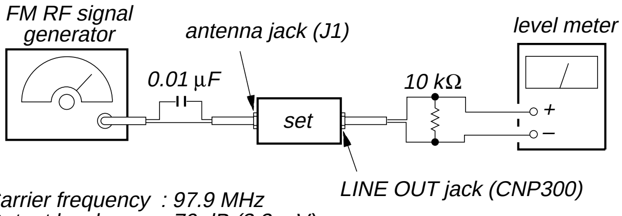
*1: MDX-C7970R indicates "98.00".

Adjustment Location: See page 22.

FM Stereo Separation Adjustment (MDX-C7970)

Setting:

SOURCE button : FM
FREQUENCY SELECT switch : FM 200 k (E model)



Carrier frequency : 97.9 MHz
Output level : 70 dB (3.2 mV)
Mode : stereo
Modulation : main : 1 kHz, 33.75 kHz deviation (45%)
sub : 1 kHz, 33.75 kHz deviation (45%)
19 kHz pilot: 7.5 kHz deviation (10%)

Procedure:

FM Stereo signal generator output channel	Level meter connection	Level meter reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 on TU1 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 on TU1 for minimum reading.

L-CH Stereo separation: Ⓐ-Ⓑ
R-CH Stereo separation: Ⓒ-Ⓓ
The separations of both channels should be equal.

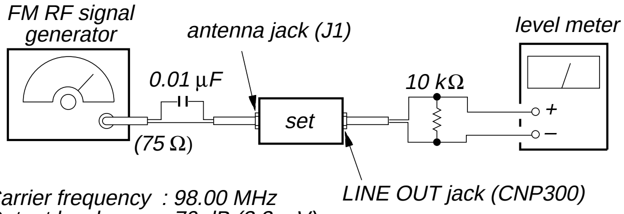
Specification: Separation more than 30 dB

Adjustment Location: See page 22.

FM Stereo Separation Adjustment (Wide) (MDX-C7970R)

Setting:

SOURCE button : FM
SHIFT button : ON (light up SET UP and PLAY MODE)
Preset 4 (PLAY MODE) →
5 (→) buttons : WIDE mode



Carrier frequency : 98.00 MHz
Output level : 70 dB (3.2 mV)
Mode : stereo
Modulation : main : 1 kHz, 33.75 kHz deviation (45%)
sub : 1 kHz, 33.75 kHz deviation (45%)
19 kHz pilot: 7.5 kHz deviation (10%)

Procedure:

1. Adjust the volume RV3 on FM/AM tuner unit (TU1) for the best separation.

FM Stereo signal generator output channel	Level meter connection	Level meter reading (dB)
L-CH	L-CH	Ⓐ
L-CH	R-CH	Ⓑ Adjust RV3 on TU1 for minimum reading.
R-CH	R-CH	Ⓒ
R-CH	L-CH	Ⓓ

L-CH Stereo separation: Ⓐ-Ⓑ
R-CH Stereo separation: Ⓒ-Ⓓ
The separations of both channels should be equal.

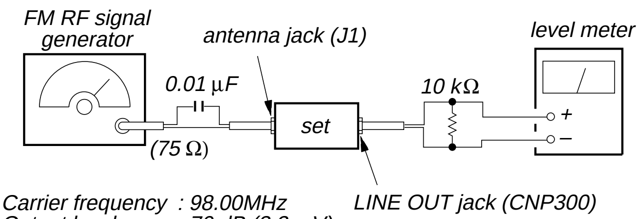
Specification: Separation more than 24 dB

Adjustment Location: See page 22.

FM Stereo Separation Adjustment (Narrow) (MDX-C7970R)

Setting:

SOURCE button : FM
SHIFT button : ON (light up SET UP and PLAY MODE)
Preset 4 (PLAY MODE) →
5 (→) buttons : NARROW mode



Carrier frequency : 98.00MHz
Output level : 70 dB (3.2 mV)
Mode : stereo
Modulation : main : 1 kHz, 20 kHz deviation (26.7%)
sub : 1 kHz, 20 kHz deviation (26.7%)
19 kHz pilot: 7.5 kHz deviation (10%)

Procedure:

1. Adjust the volume RV4 on FM/AM tuner unit (TU1) for the best separation.

FM Stereo signal generator output channel	Level meter connection	Level meter reading (dB)
L-CH	L-CH	Ⓐ
L-CH	R-CH	Ⓑ Adjust RV4 on TU1 for minimum reading.
R-CH	R-CH	Ⓒ
R-CH	L-CH	Ⓓ

L-CH Stereo separation: Ⓐ-Ⓑ
R-CH Stereo separation: Ⓒ-Ⓓ
The separations of both channels should be equal.

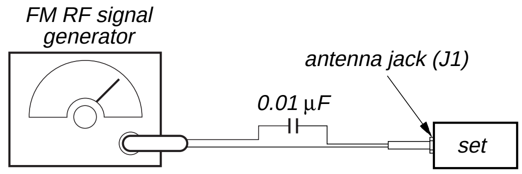
Specification: Separation more than 18 dB

Adjustment Location: See page 22.

FM RDS S-Meter Adjustment (MDX-C7970R)

Setting:

SOURCE button : FM

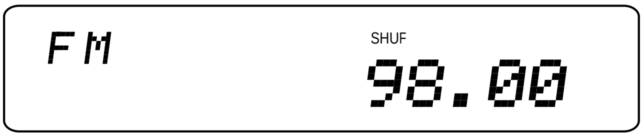


Carrier frequency : 98.00 MHz
Output level : 35 dB (56.2 µV)
Mode : mono
Modulation : no modulation

Procedure:

1. Set to the test mode. (See page 18)
2. Push the SOURCE button and set to FM.

Display



3. Push the preset 10 button .
4. Adjust RV1 on MAIN board so that the display indication is “13.2”.

Display



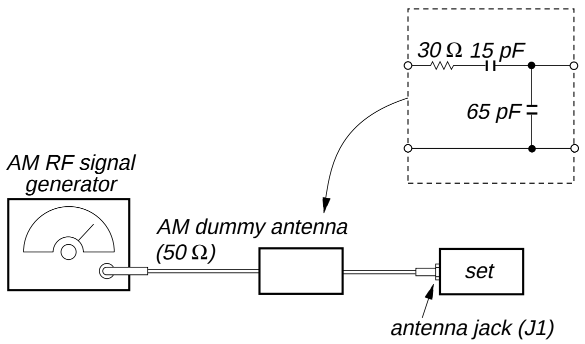
Specification: Display indication: 13.0 to 13.4

Adjustment Location: See page 22.

MW Auto Scan/Stop Level Adjustment

Setting:

SOURCE → MODE button : AM (MDX-C7970)
MW (MDX-C7970R)
FREQUENCY SELECT switch : AM 10 k (E model)

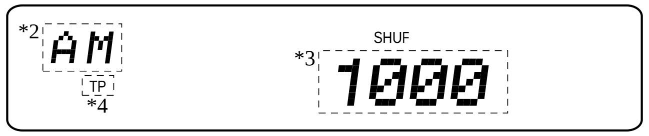


Carrier frequency : 1000 kHz (MDX-C7970)
999 kHz (MDX-C7970R)
30% amplitude modulation by 1 kHz signal
Output level : 33 dB (44.7 µV)

Procedure:

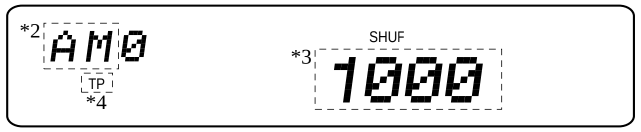
1. Set to the test mode. (See page 18)
2. Push the SOURCE button and set to FM.
3. Push the MODE button and set to AM or MW.

Display



4. Adjust with the volume RV1 on TU1 so that the "AM" or "MW" indication turns to "AM0" or "MW0" indication on the display window.
   But, in case of alredy indicated "AM0" or "MW0", turn the RV1 so that put out light "0" indication and adjustment.

Display

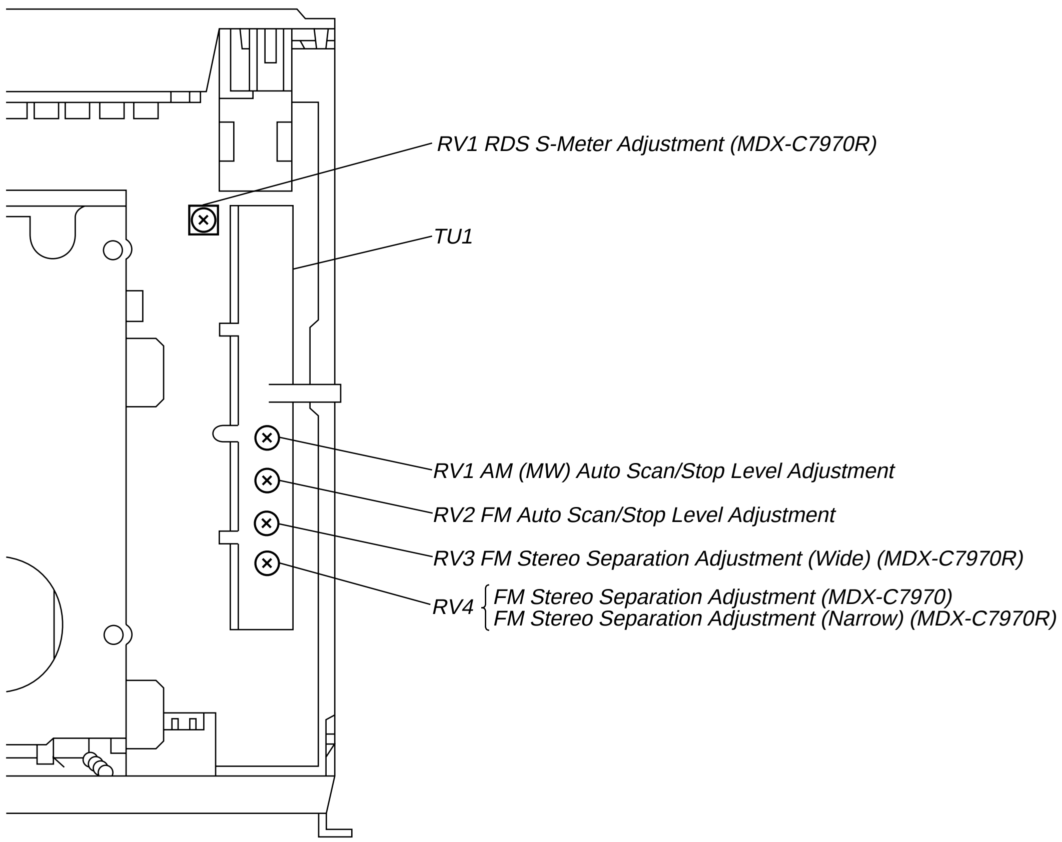


*2: MDX-C7970R indicates "MW".
*3: MDX-C7970R indicates "999".
*4: Only MDX-C7970R indicates.

Adjustment Location: See page 22.

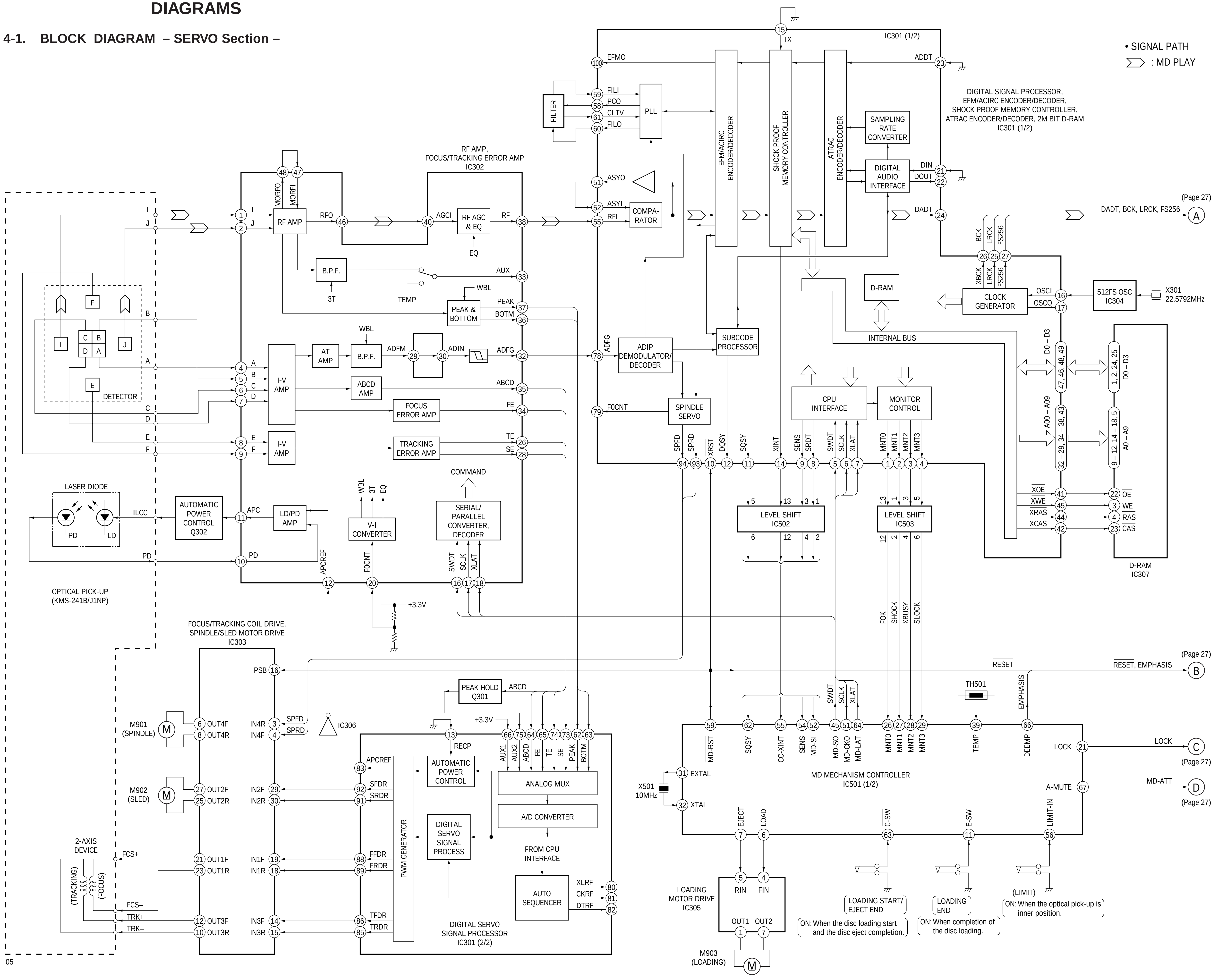
Adjustment Location:

– SET UPPER VIEW –

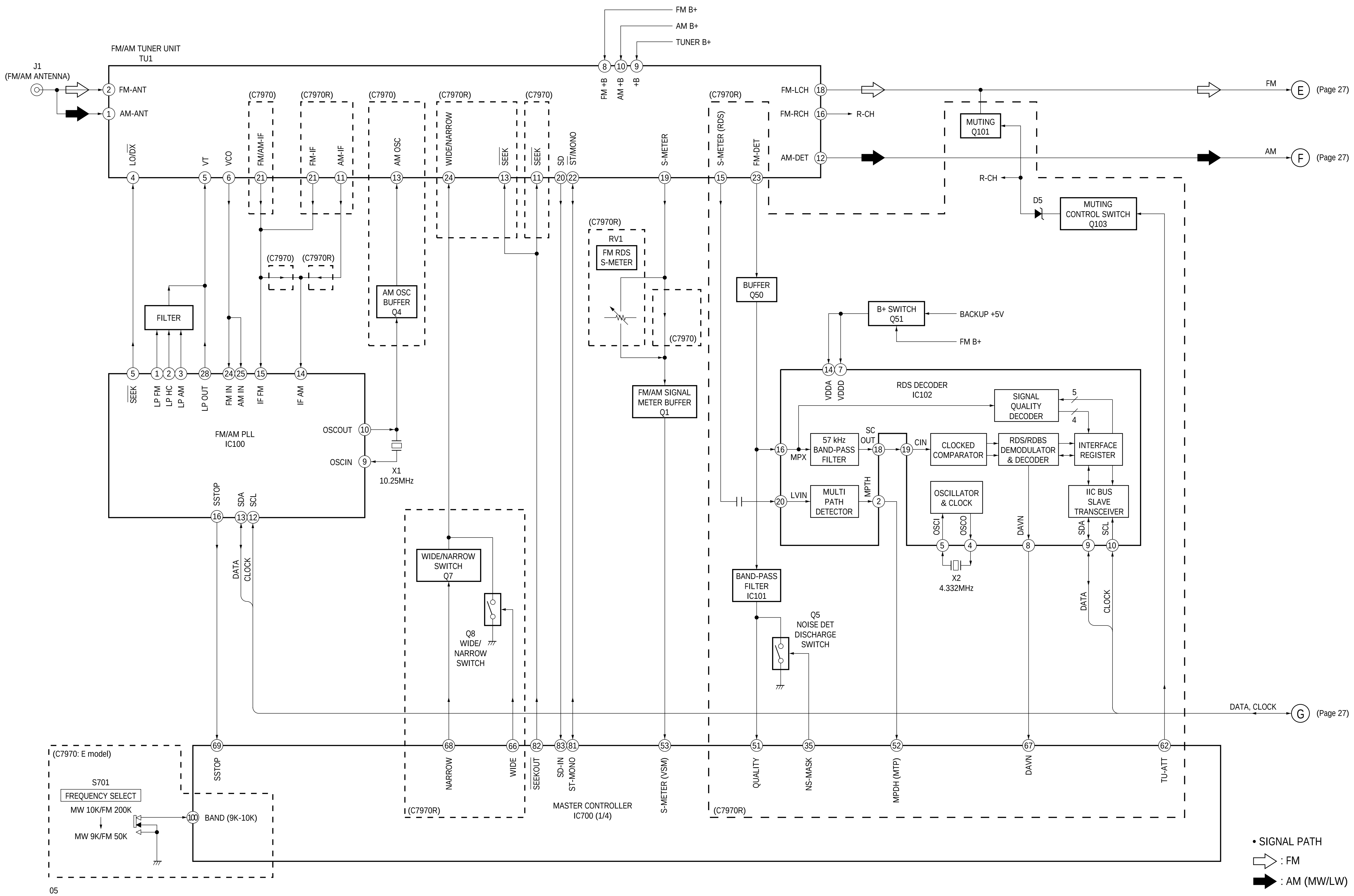


SECTION 4
DIAGRAMS

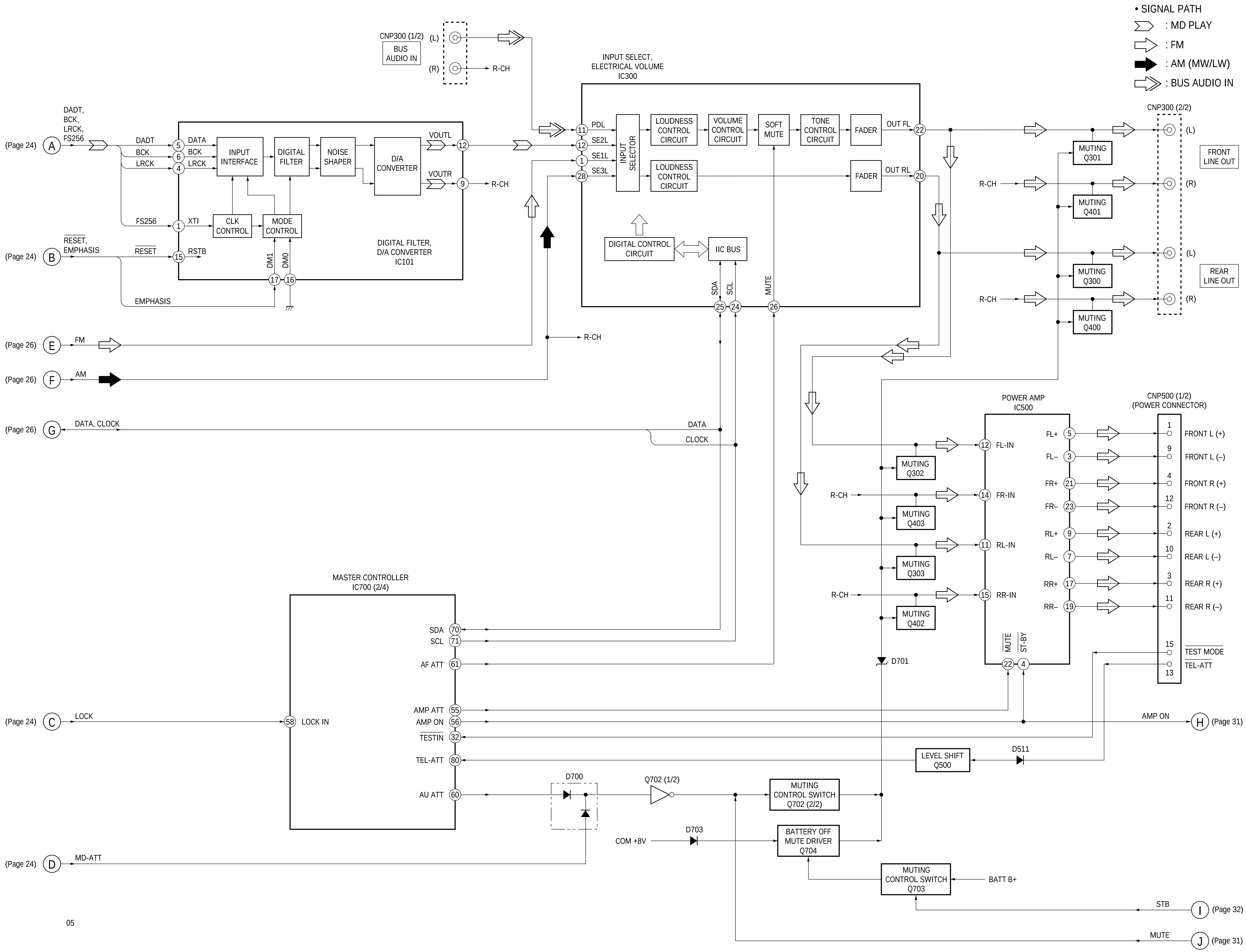
4-1. BLOCK DIAGRAM – SERVO Section –



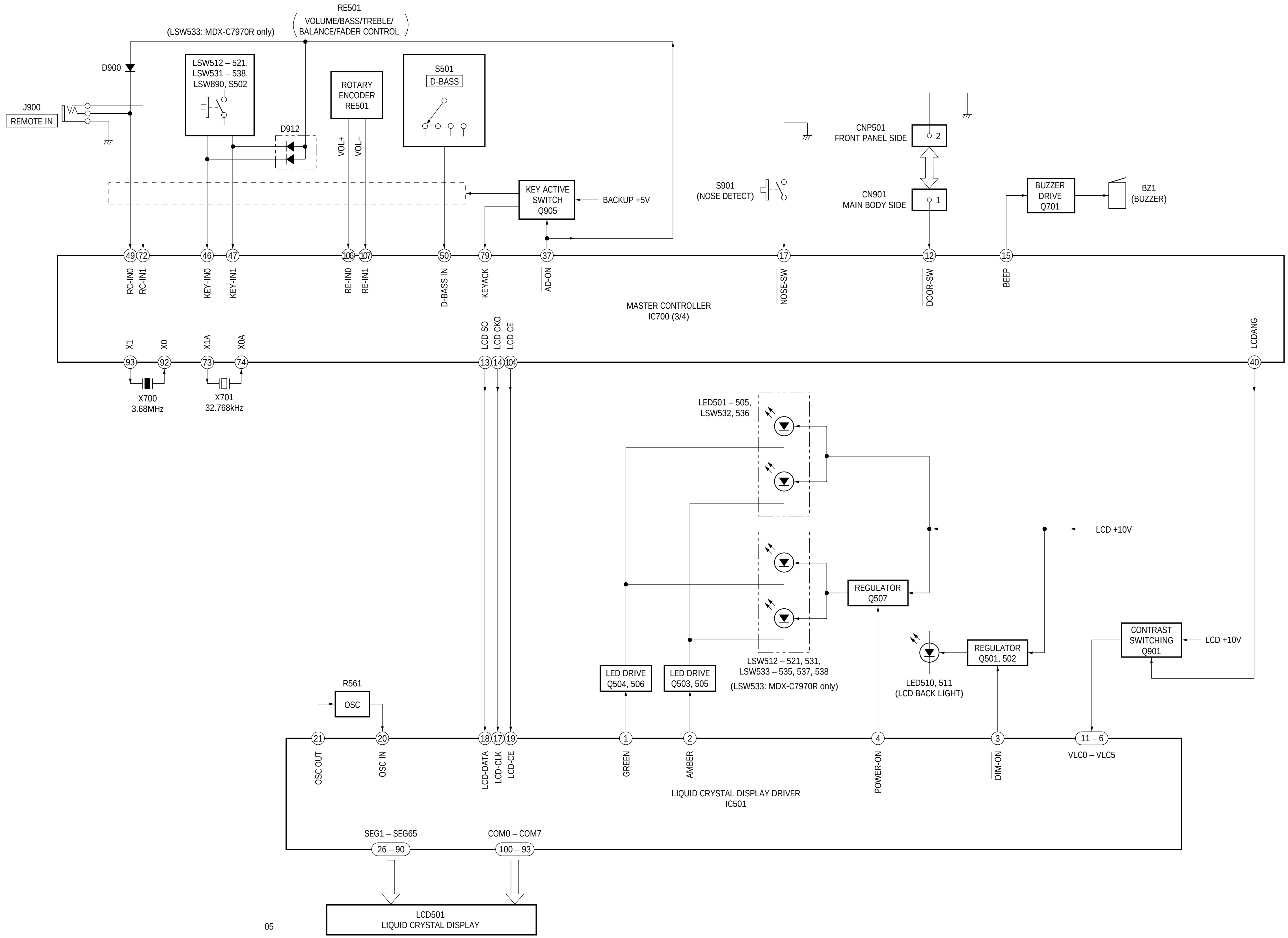
4-2. BLOCK DIAGRAM – TUNER Section –



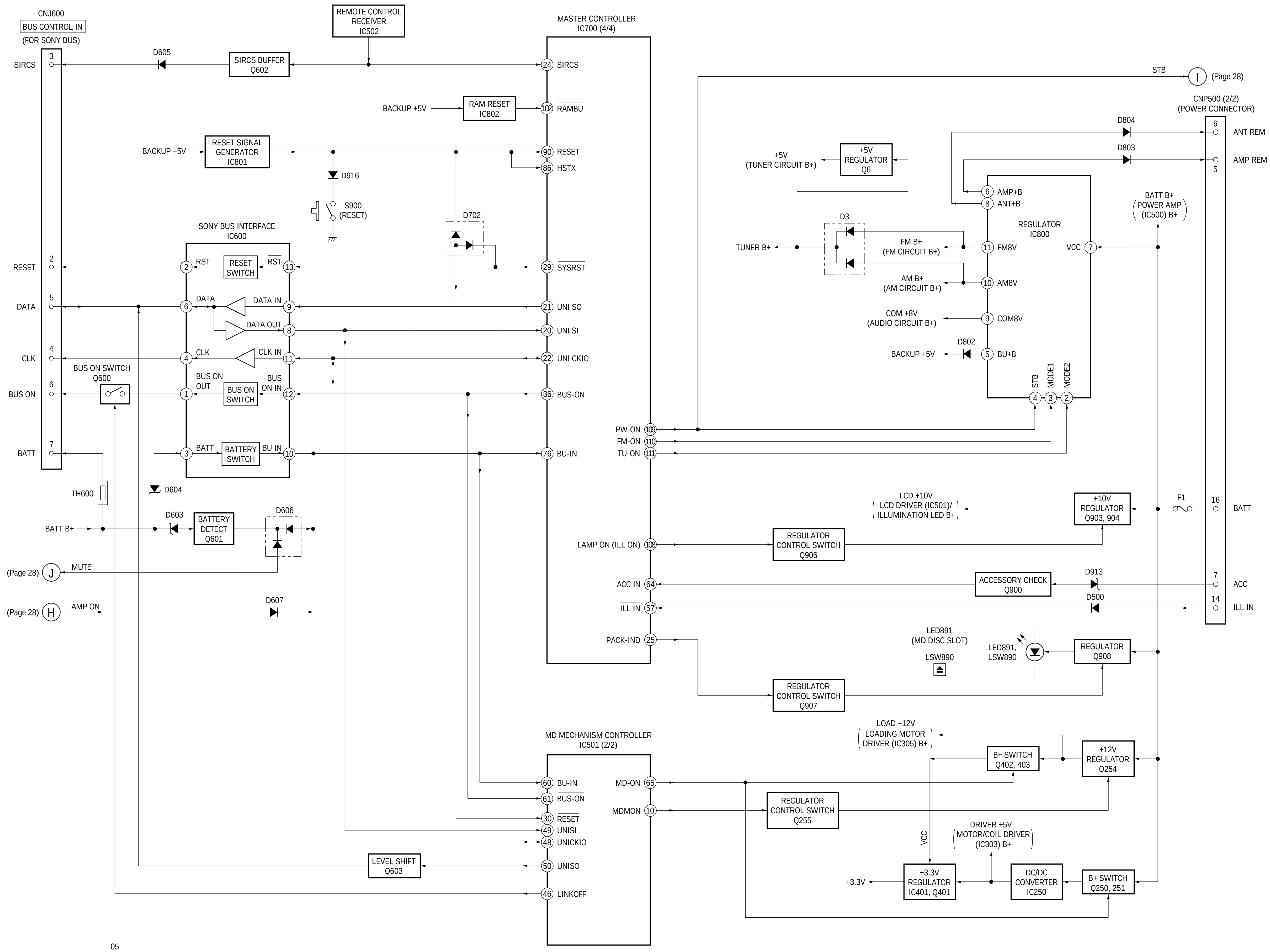
4-3. BLOCK DIAGRAM – MAIN Section –



4-4. BLOCK DIAGRAM – DISPLAY/KEY CONTROL Section –



4-5. BLOCK DIAGRAM – BUS CONTROL/POWER SUPPLY Section –



4-6. NOTES FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:

- o——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- ● : Through hole.
- △ : internal component.
- ░░░ : Pattern from the side which enables seeing.

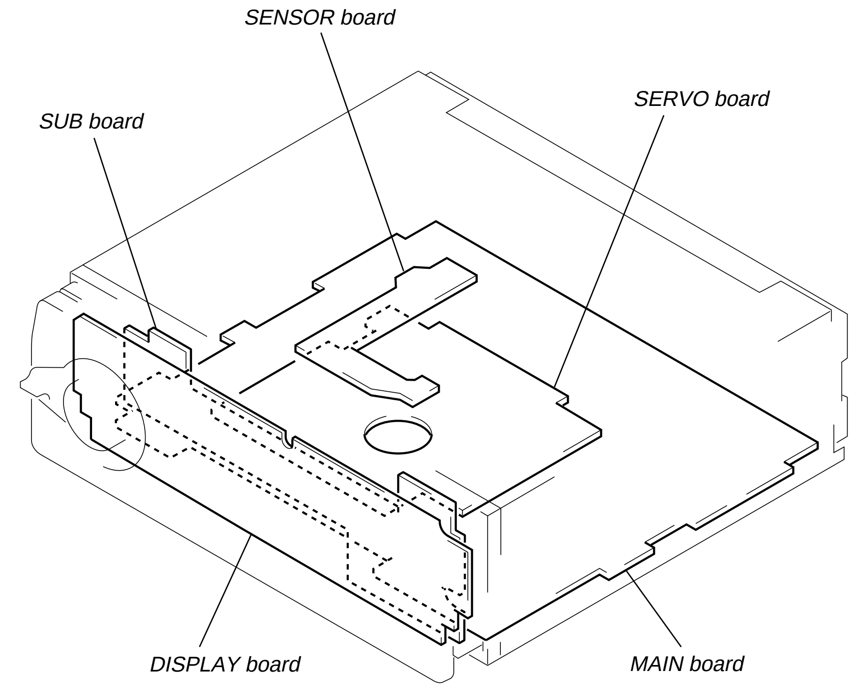
(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

Note on Schematic Diagram:

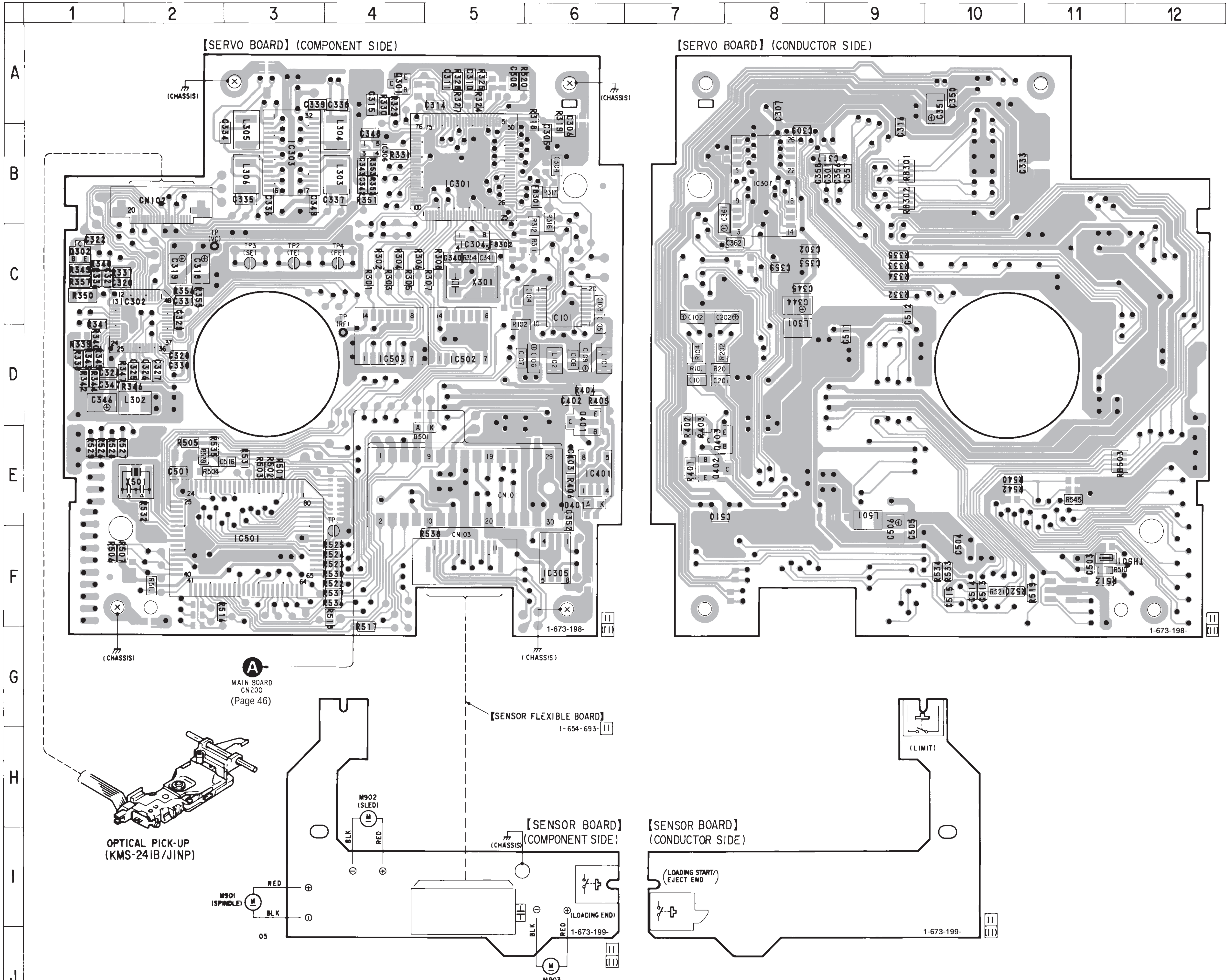
- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.
- B+ : B+ Line.
- ▭ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from ACC and BATT cords.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ⇨ : FM
  - ➡ : AM (MW/LW)
  - ⇨ : BUS AUDIO IN
  - ⊐ : MD PLAY

- **Circuit Boards Location**



4-7. PRINTED WIRING BOARDS – SERVO Section –

• See page 34 for Circuit Boards Location.



• **Semiconductor Location**

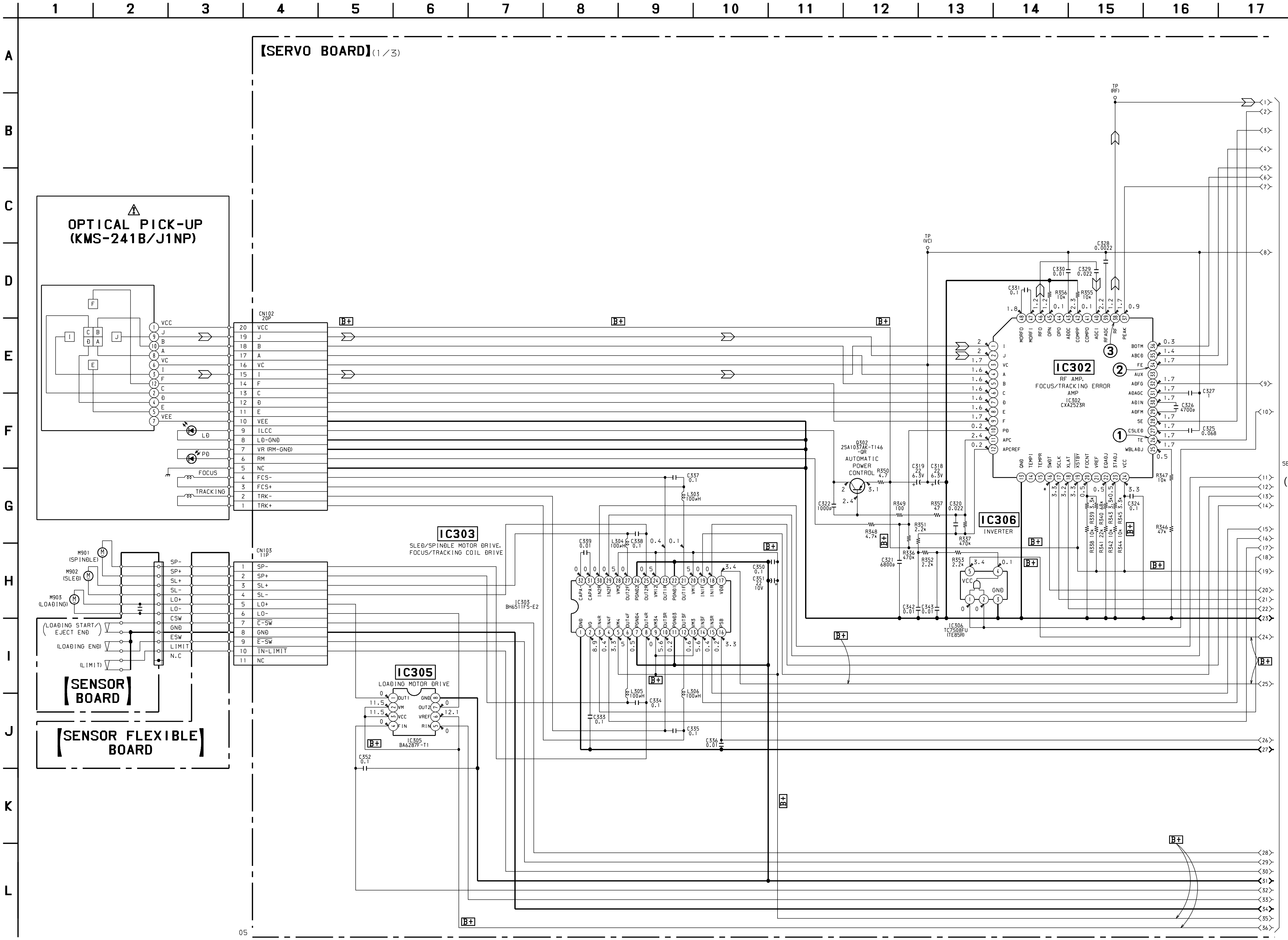
Ref. No.	Location
D401	E-6
D501	E-4
IC301	B-5
IC302	C-2
IC303	B-3
IC304	C-5
IC305	F-6
IC306	B-4
IC307	B-8
IC401	E-6
IC501	F-3
IC502	D-5
IC503	D-4
Q301	A-4
Q302	C-1
Q401	D-6
Q402	E-7
Q403	E-7

4-8. SCHEMATIC DIAGRAM – SERVO Board (1/3) –

• See page 67 for Waveforms. • See page 63 for IC Block Diagrams.

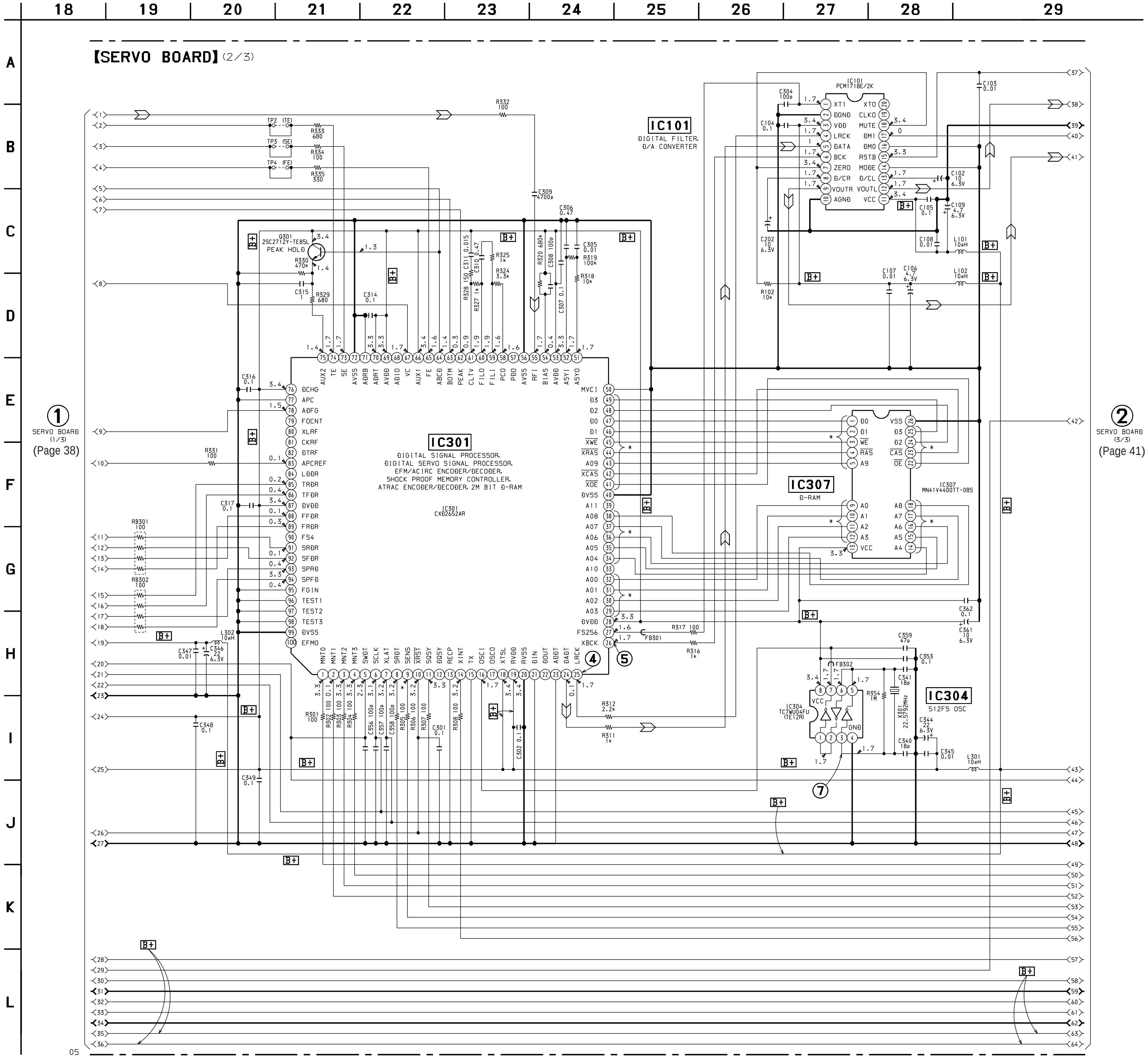
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  - no mark : MD PLAY
  - * : Impossible to measure



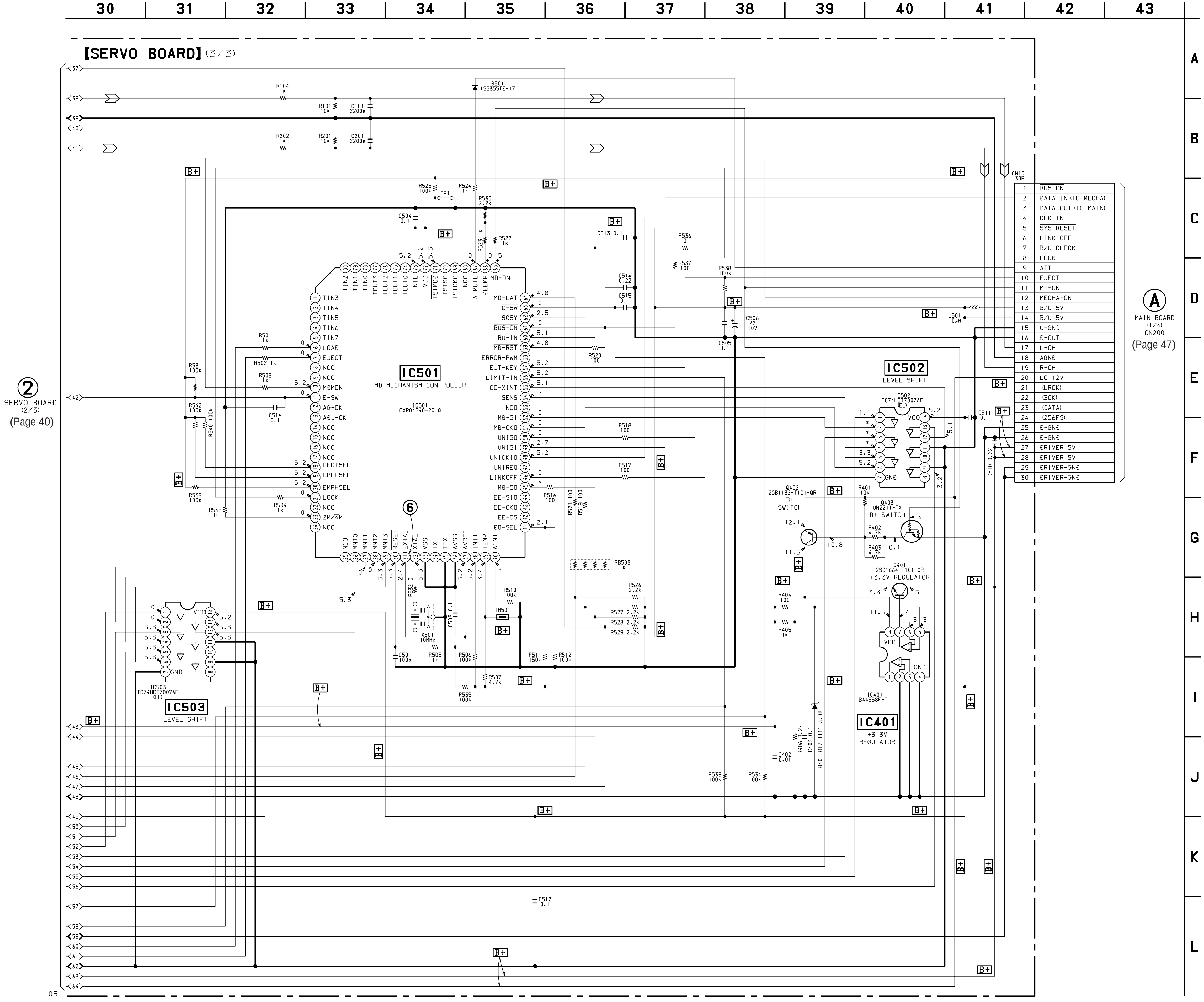
• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : MD PLAY
∗ : Impossible to measure

4-9. SCHEMATIC DIAGRAM – SERVO Board (2/3) – • See page 67 for Waveforms. • See page 62 for IC Block Diagrams.



- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark : MD PLAY
  * : Impossible to measure

4-10. SCHEMATIC DIAGRAM – SERVO Board (3/3) – • See page 67 for Waveform.

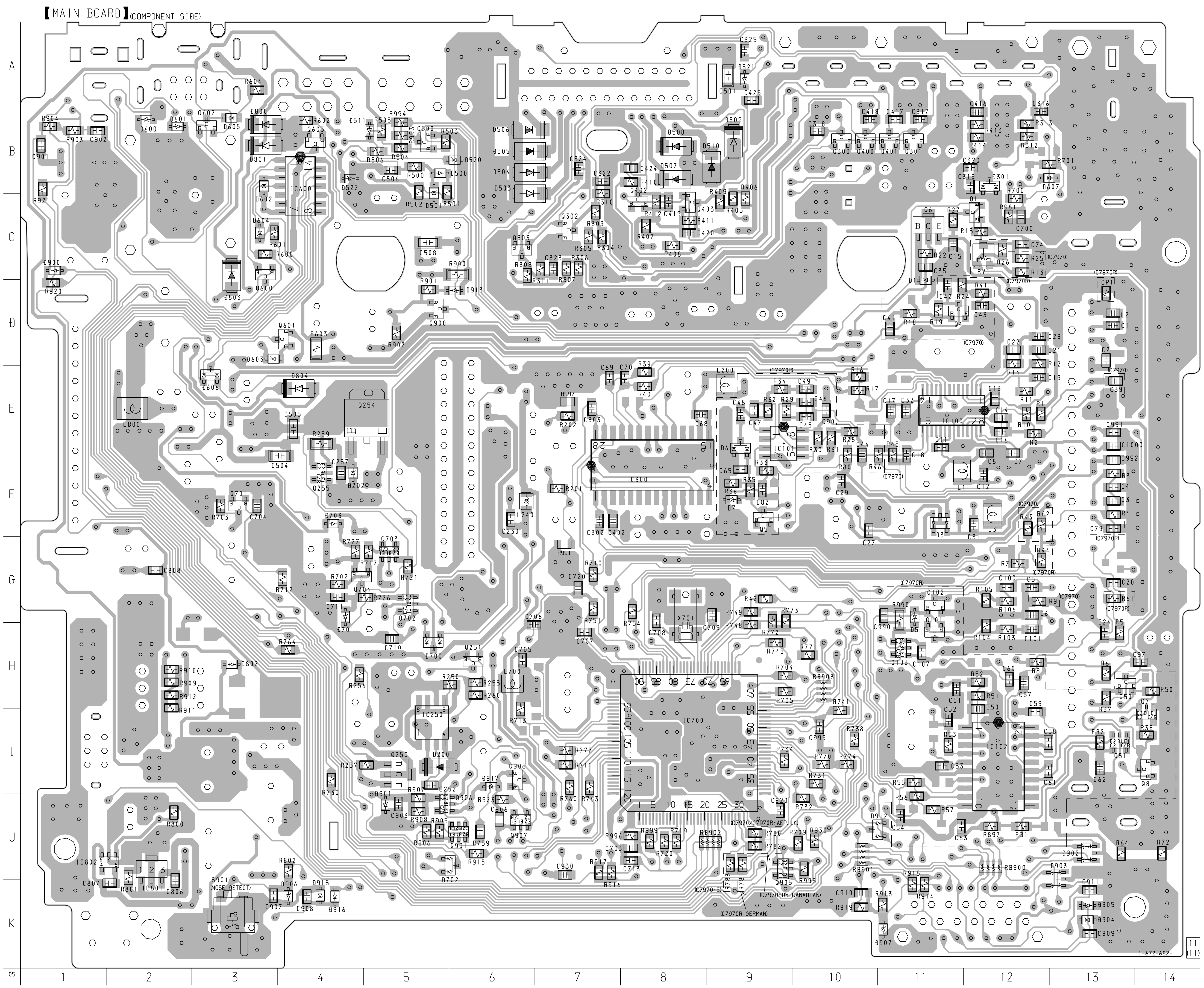


4-11. PRINTED WIRING BOARD – MAIN Board (Component Side) –

• See page 34 for Circuit Boards Location.

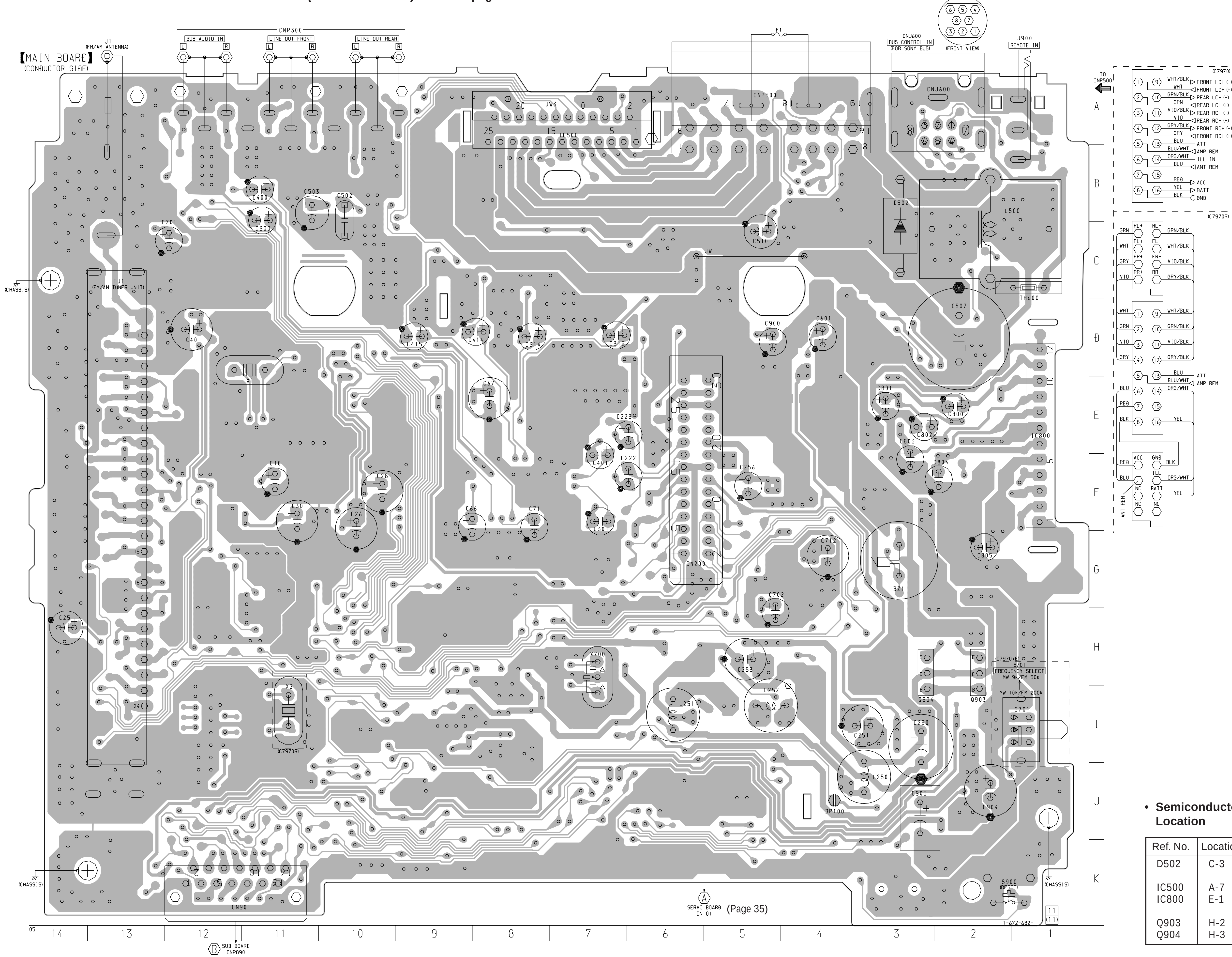
• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1	D-11	D917	I-6
D3	F-11		
D5	H-11	IC100	E-11
D6	F-9	IC101	E-9
D7	F-9	IC102	I-12
D200	I-5	IC250	I-5
D202	F-4	IC300	F-8
D301	B-12	IC600	B-4
D500	B-5	IC700	I-8
D501	C-5	IC801	J-2
D503	C-6	IC802	J-2
D504	B-6		
D505	B-6	Q1	C-12
D506	B-6	Q4	D-11
D507	B-8	Q5	F-9
D508	B-8	Q6	C-11
D509	B-9	Q7	I-14
D510	B-9	Q8	I-14
D511	B-5	Q50	H-13
D520	B-6	Q51	I-13
D521	A-9	Q101	H-11
D522	B-4	Q102	G-11
D600	B-2	Q103	H-11
D601	B-2	Q250	I-5
D602	B-3	Q251	H-6
D603	E-3	Q254	E-5
D604	C-3	Q255	F-4
D605	B-3	Q300	B-10
D606	E-3	Q301	B-11
D607	B-13	Q302	C-7
D700	H-5	Q303	C-6
D701	H-4	Q400	B-10
D702	J-6	Q401	B-11
D703	F-4	Q402	C-8
D800	B-3	Q403	C-8
D801	B-3	Q500	B-5
D802	H-3	Q600	D-3
D803	D-3	Q601	D-4
D804	E-4	Q602	B-3
D900	C-1	Q603	B-4
D901	J-5	Q701	F-3
D902	J-13	Q702	G-5
D903	K-13	Q703	G-5
D904	K-13	Q704	G-4
D905	K-13	Q900	D-5
D906	K-4	Q901	J-6
D907	K-11	Q905	J-9
D912	J-11	Q906	J-5
D913	D-6	Q907	J-6
D915	K-4	Q908	I-6
D916	K-4		



4-12. PRINTED WIRING BOARD – MAIN Board (Conductor Side) –

• See page 34 for Circuit Boards Location.



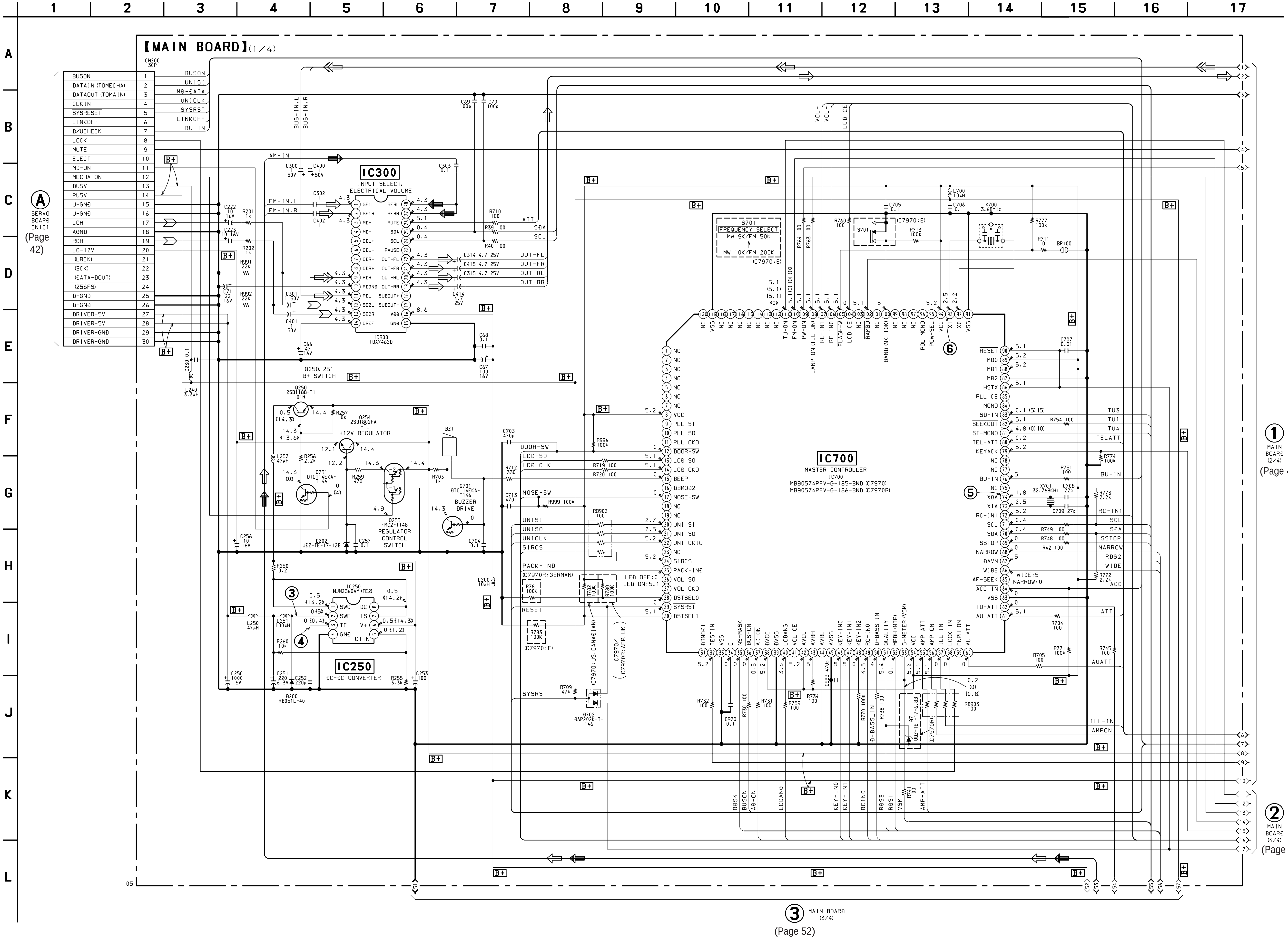
- **Semiconductor Location**

Ref. No.	Location
D502	C-3
IC500	A-7
IC800	E-1
Q903	H-2
Q904	H-3

- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  (   ) : AM (MW)
  [   ] : LW
  《   》 : MD PLAY

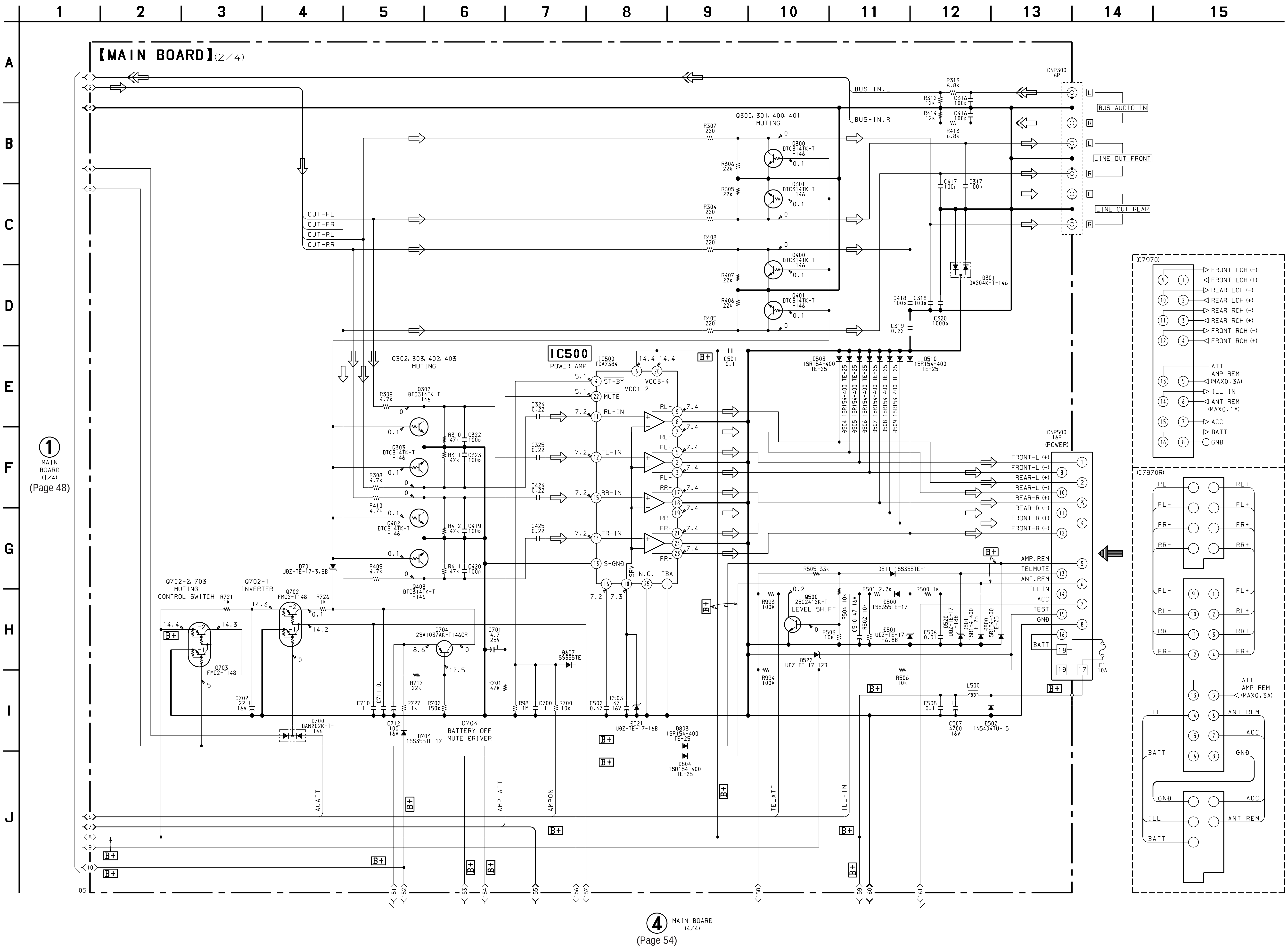
4-13. SCHEMATIC DIAGRAM – MAIN Board (1/4) –

• See page 67 for Waveforms. • See page 65 for IC Block Diagrams.



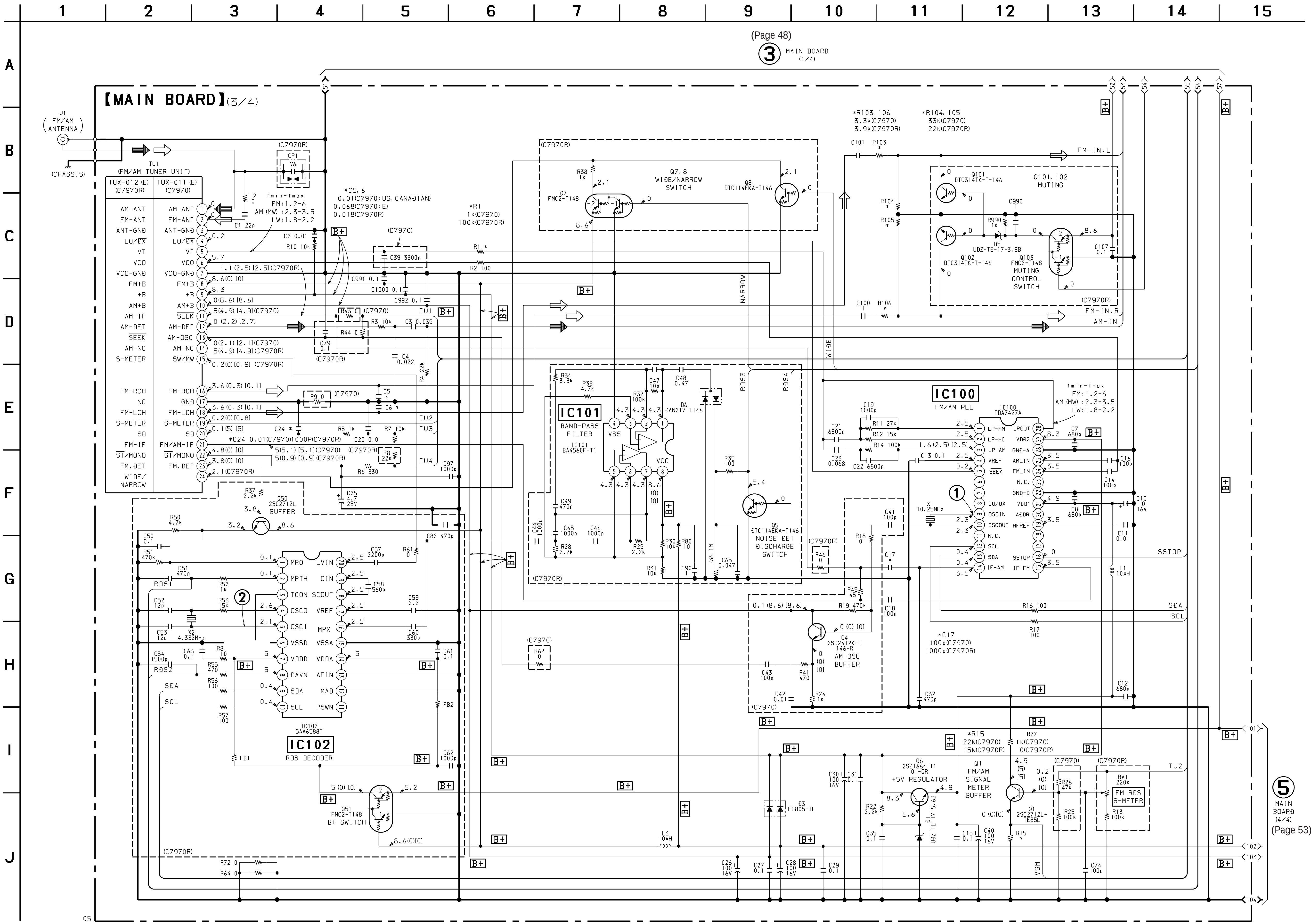
4-14. SCHEMATIC DIAGRAM – MAIN Board (2/4) –

- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM



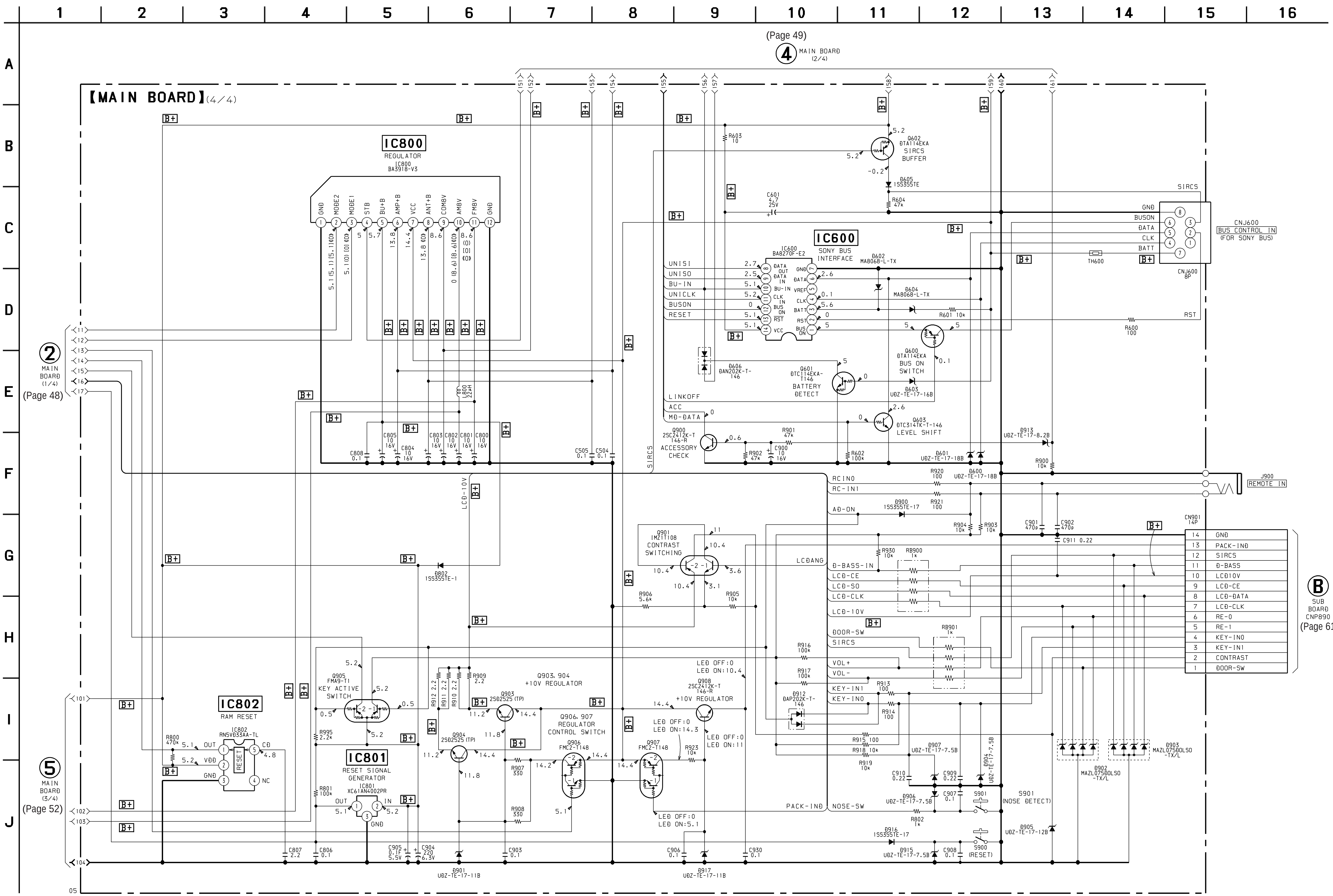
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM (MW)
  [ ] : LW

4-15. SCHEMATIC DIAGRAM – MAIN Board (3/4) – • See page 67 for Waveforms. • See page 65 for IC Block Diagrams.



- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM (MW)
  [ ] : LW
  《 》 : MD PLAY

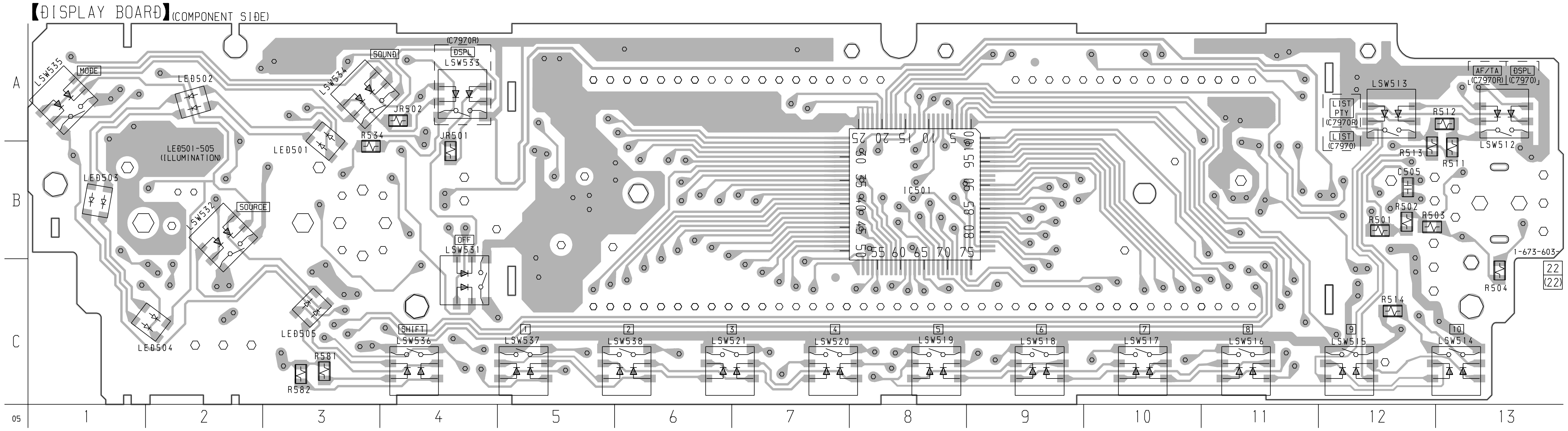
4-16. SCHEMATIC DIAGRAM – MAIN Board (4/4) – • See page 66 for IC Block Diagrams.



4-17. PRINTED WIRING BOARD – DISPLAY Board – • See page 34 for Circuit Boards Location.

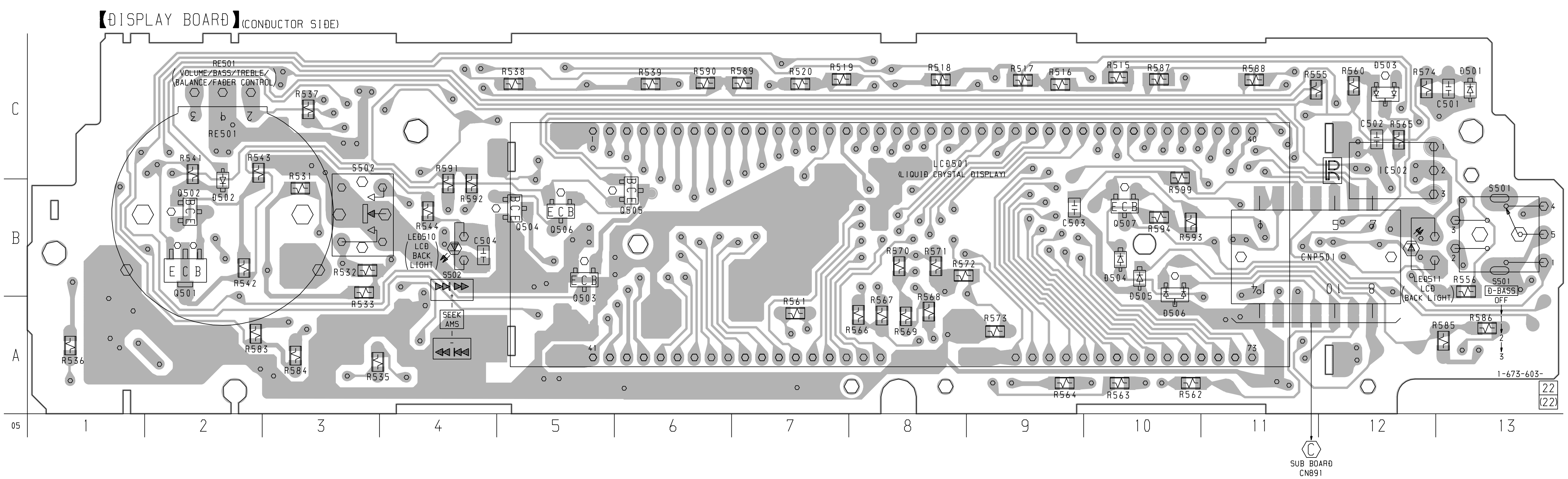
• **Semiconductor Location (Component Side)**

Ref. No.	Location
IC501	B-8
LED501	A-3
LED502	A-2
LED503	B-1
LED504	C-2
LED505	C-3
LED510	B-5
LED511	B-11



• **Semiconductor Location (Conductor Side)**

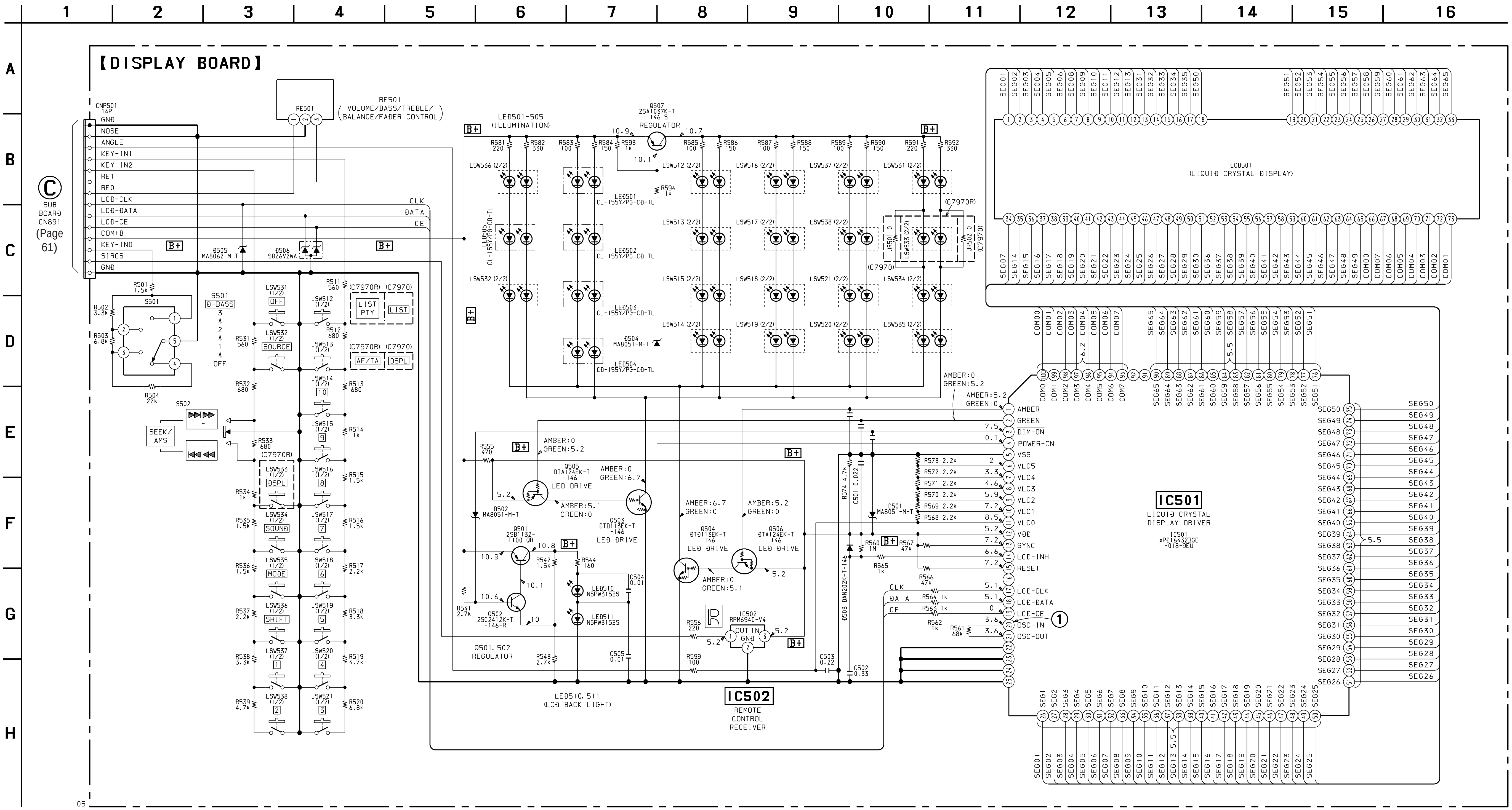
Ref. No.	Location
D501	C-13
D502	B-2
D503	C-12
D504	B-10
D505	B-10
D506	B-10
IC502	C-12
Q501	B-2
Q502	B-2
Q503	B-5
Q504	B-5
Q505	B-6
Q506	B-5
Q507	B-10



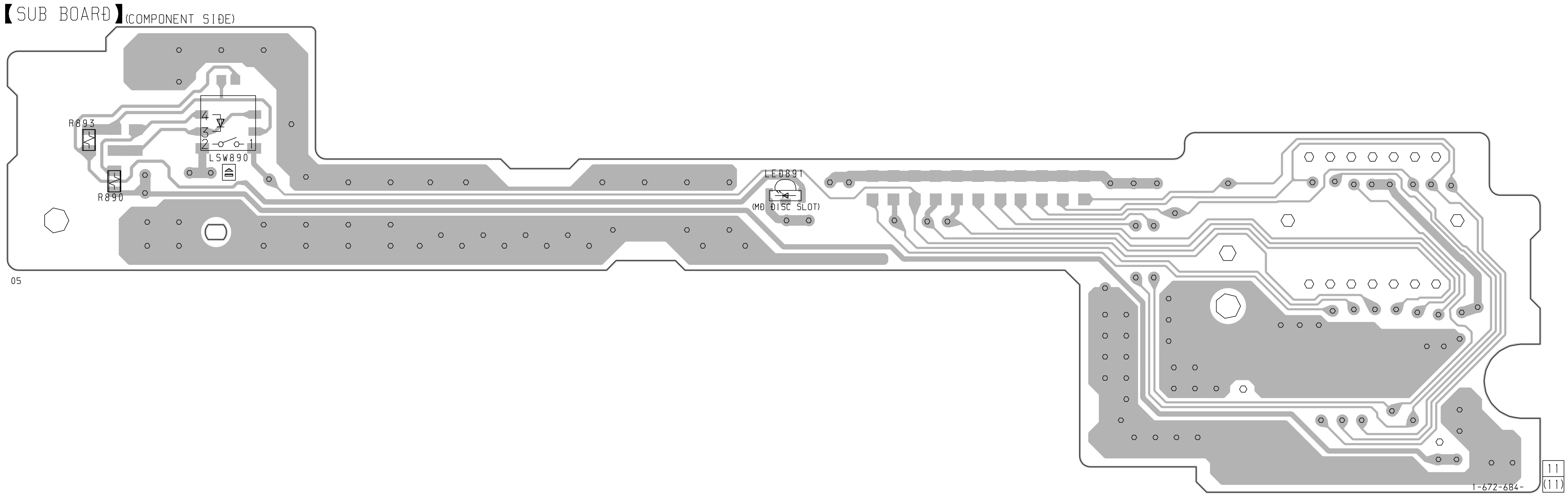
(Page 60)

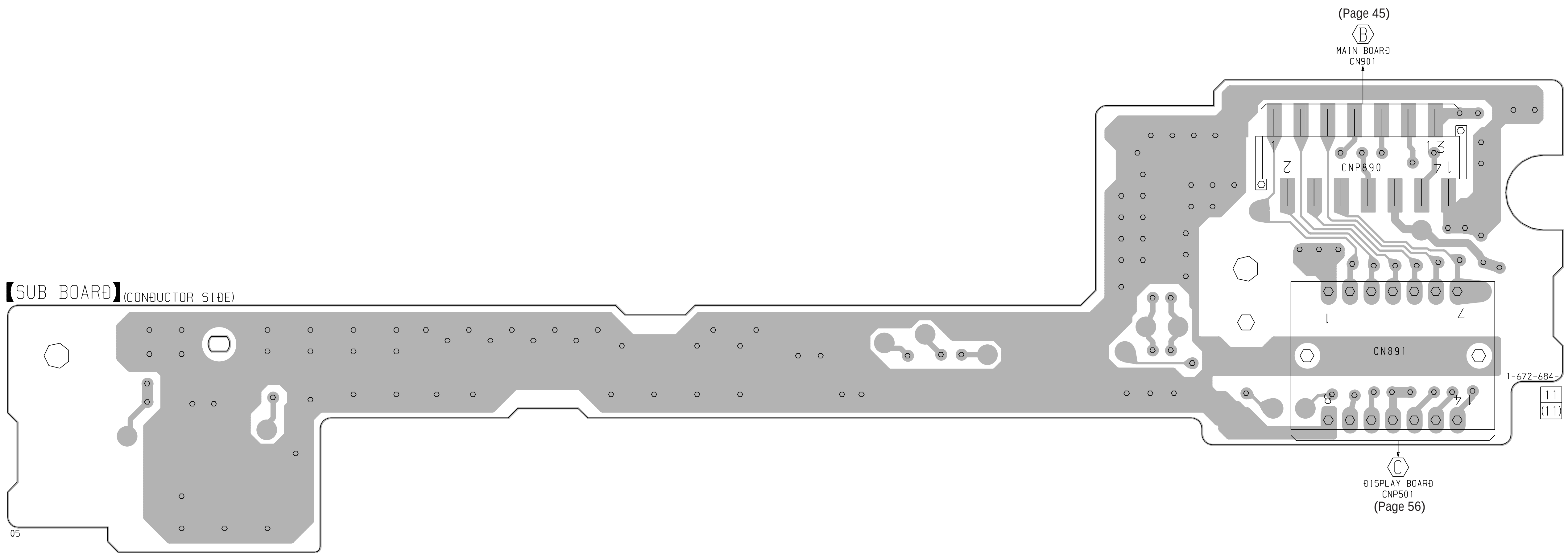
• Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
no mark : FM

4-18. SCHEMATIC DIAGRAM – DISPLAY Board – • See page 68 for Waveform.

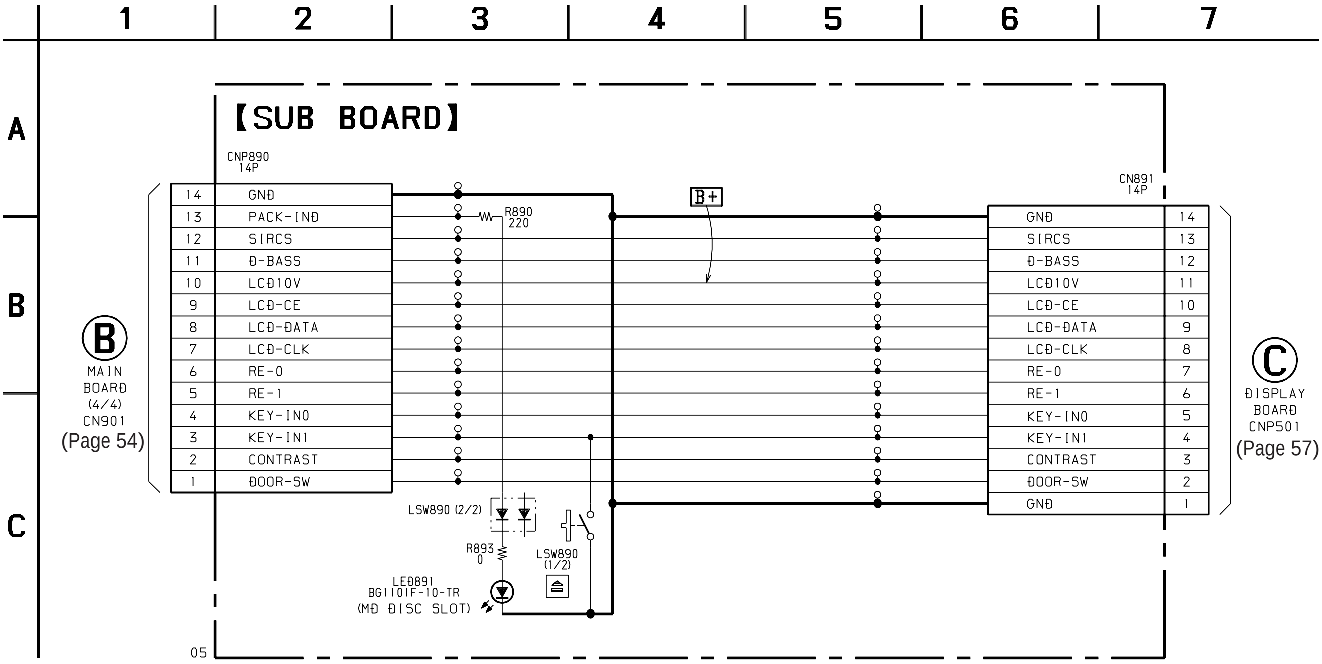


4-19. PRINTED WIRING BOARD – SUB Board – • See page 34 for Circuit Boards Location.



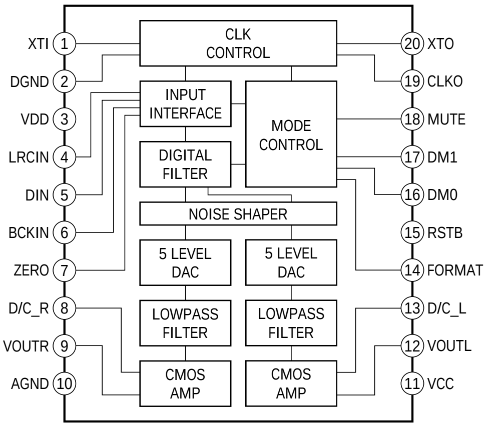


4-20. SCHEMATIC DIAGRAM – SUB Board –

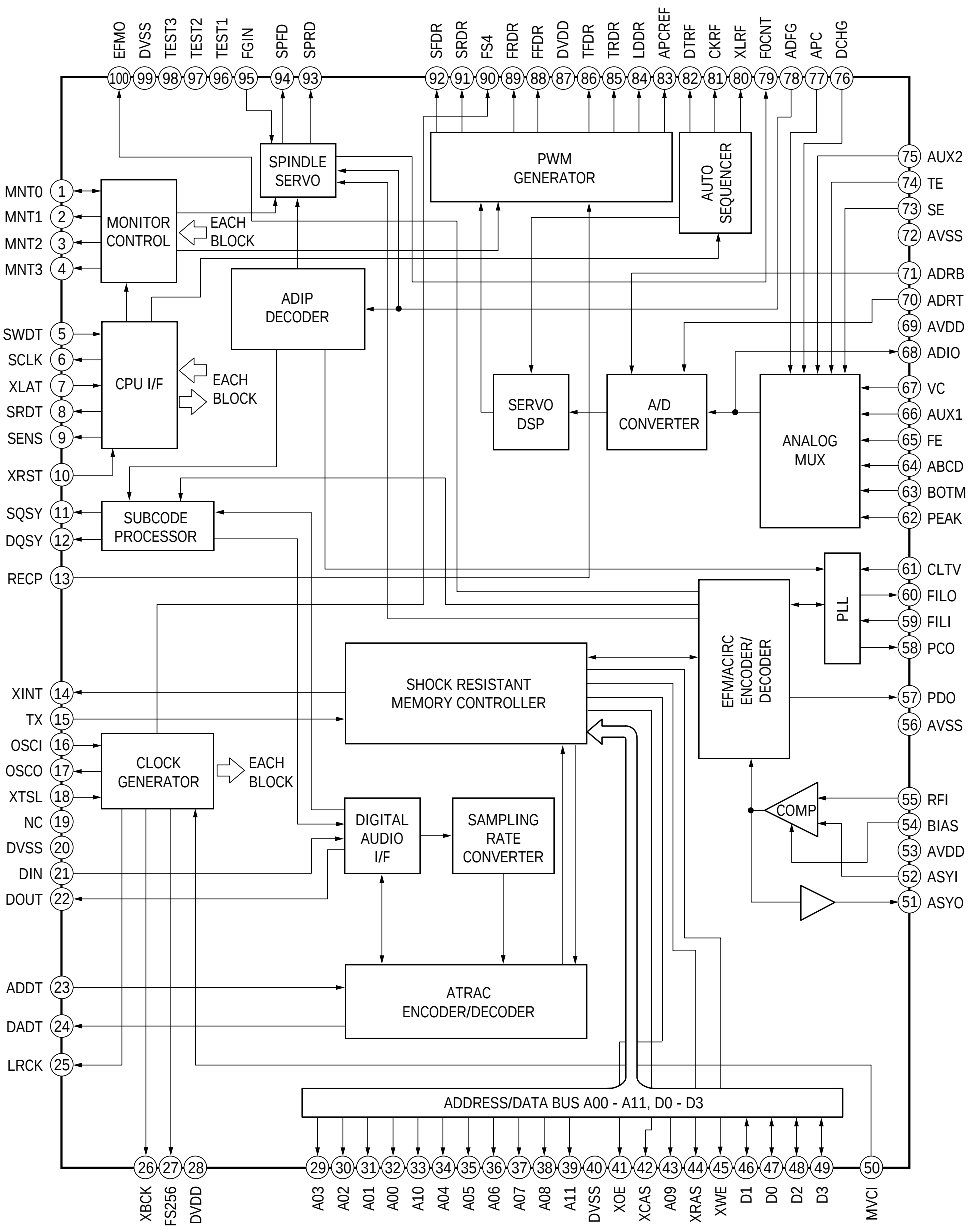


• **IC Block Diagrams**
– SERVO Board –

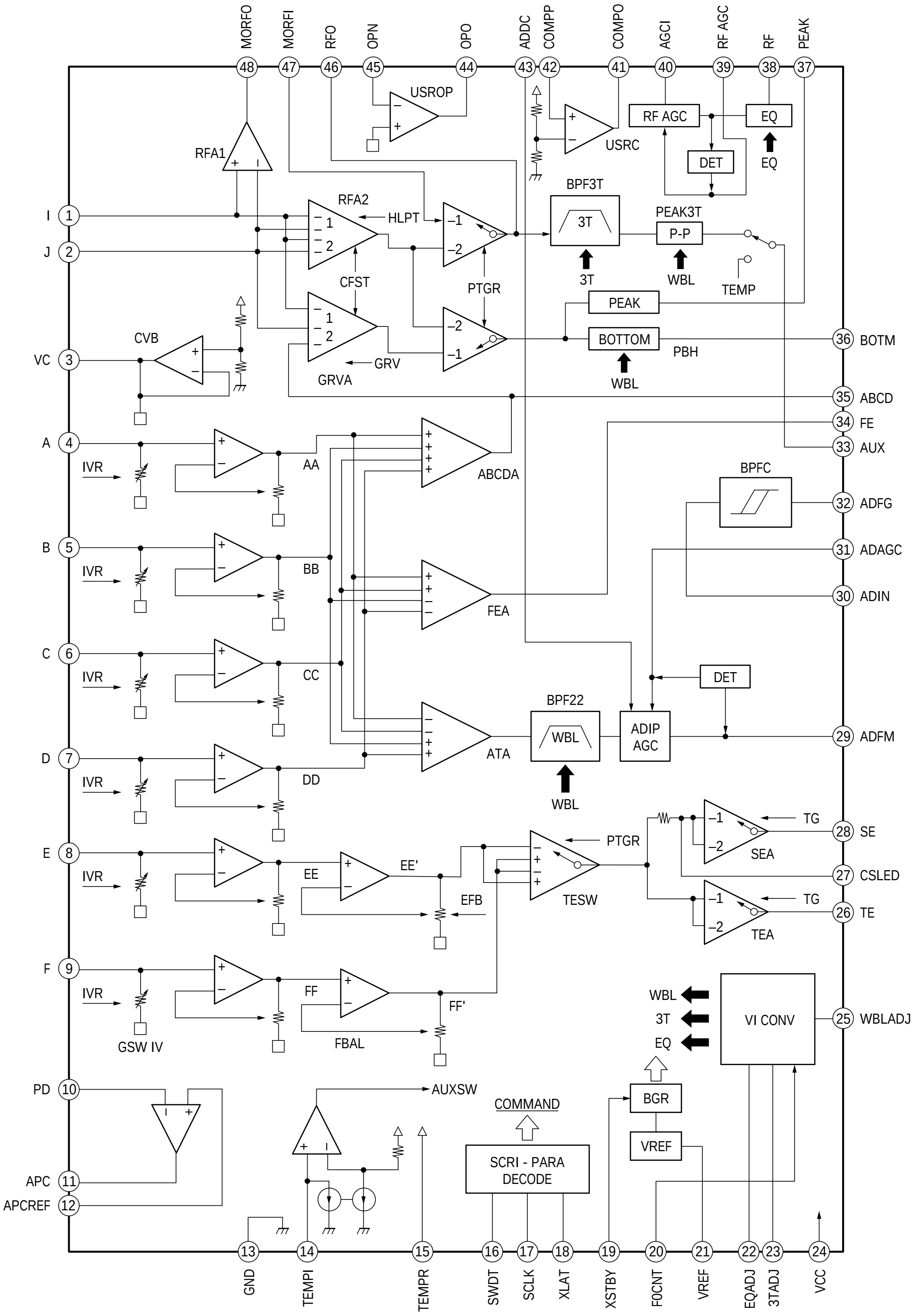
IC101 PCM1718E/2K



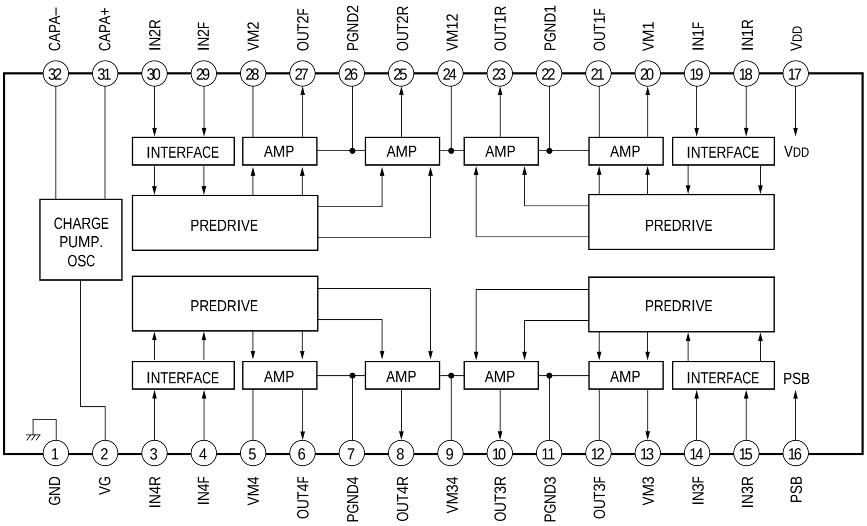
IC301 CXD2652AR



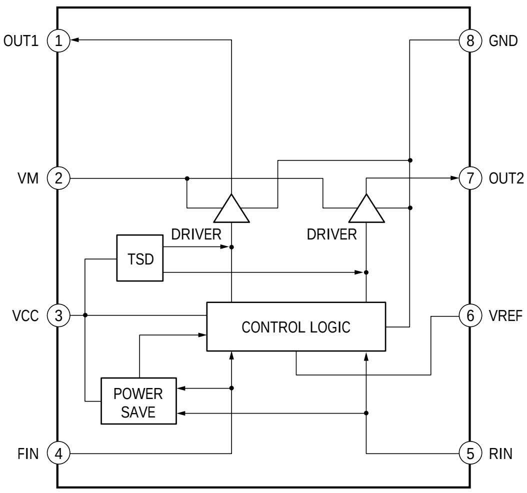
IC302 CXA2523R



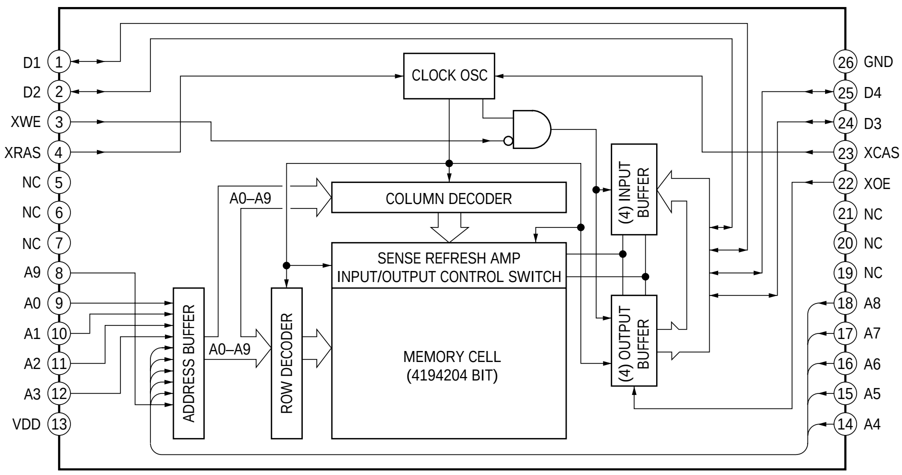
IC303 BH6511FS-E2



IC305 BA6287F

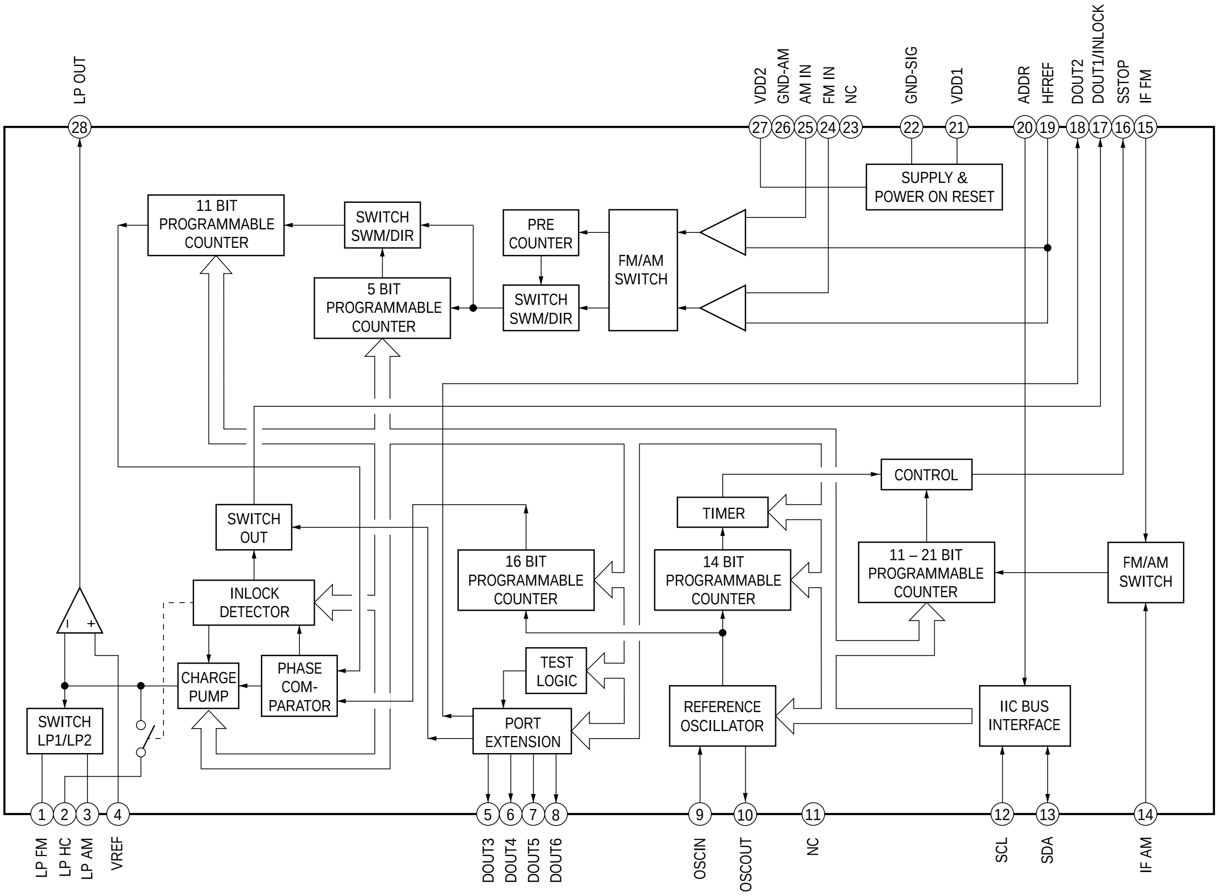


IC307 MN41V4400TT-08S

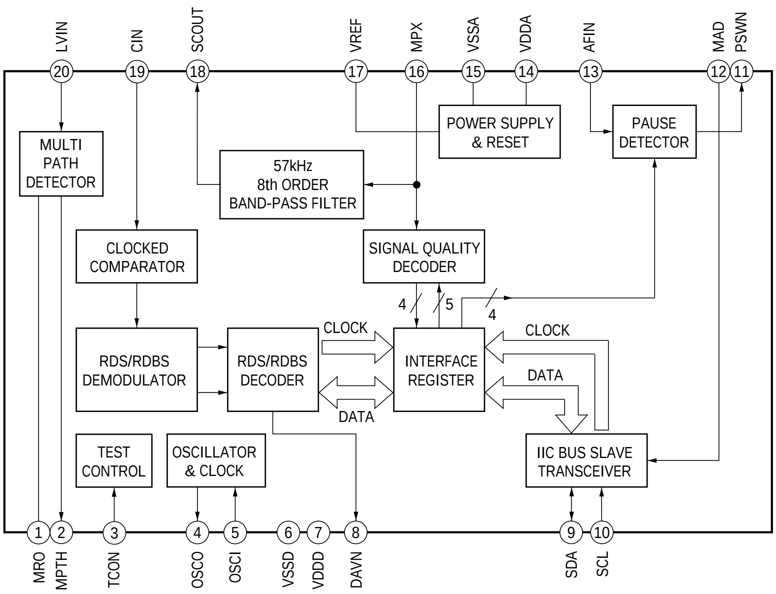


– MAIN Board –

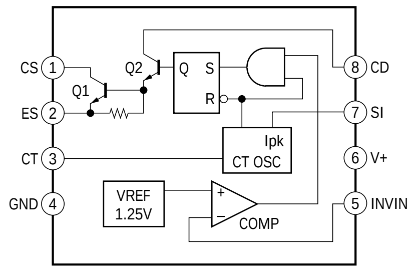
IC100 TDA7427AD



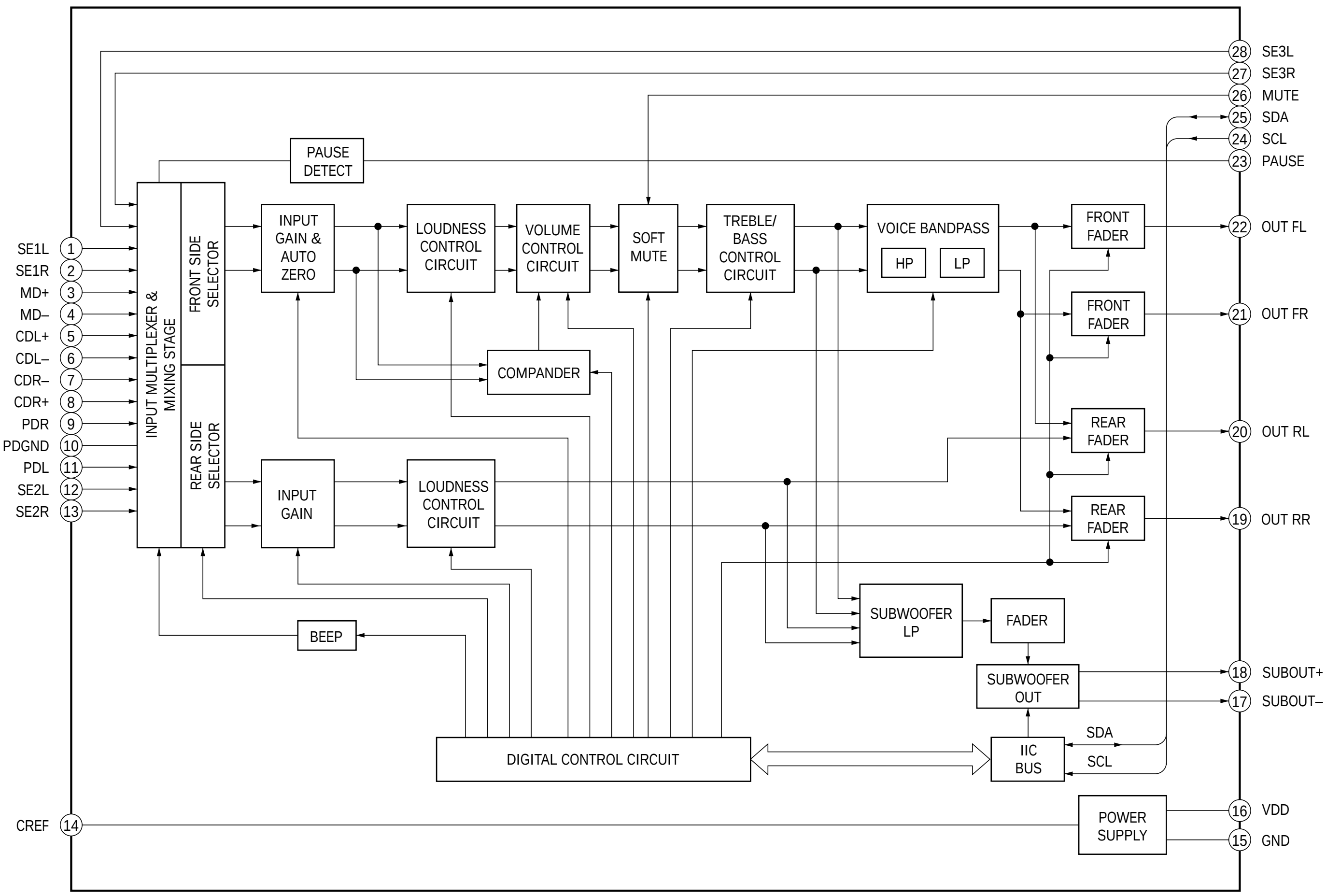
IC102 SAA6588T-118 (MDX-C7970R)



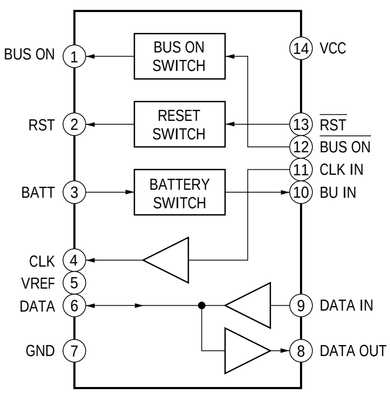
IC250 NJM2360AM (TE2)



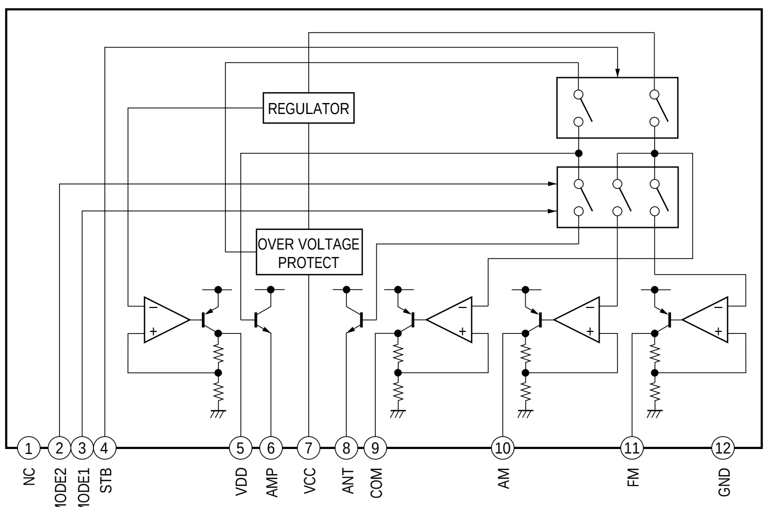
IC300 TDA7462D013TR



IC600 BA8270F-E2



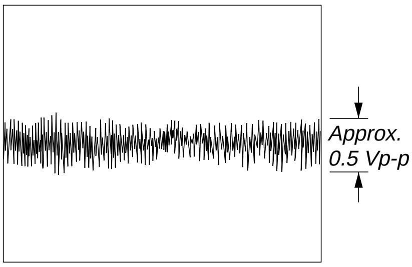
IC800 BA3918-V3



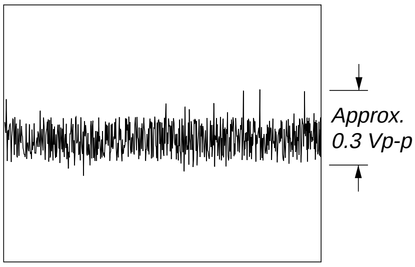
• **Waveforms**

– SERVO Board –

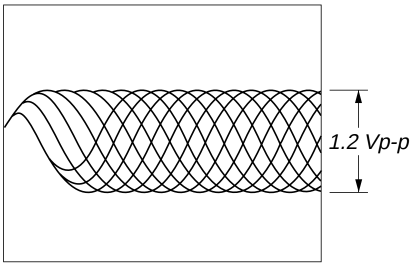
❶ IC302 ㉖ (TE) (MD PLAY Mode)



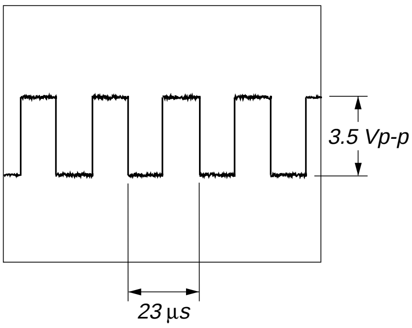
❷ IC302 ㉞ (FE) (MD PLAY Mode)



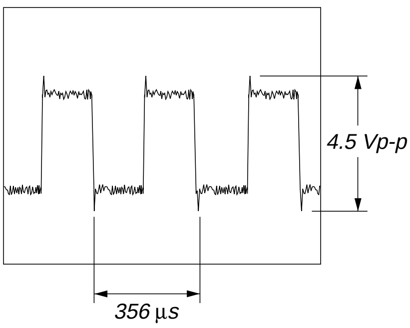
❸ IC302 ㊳ (RF) (MD PLAY Mode)



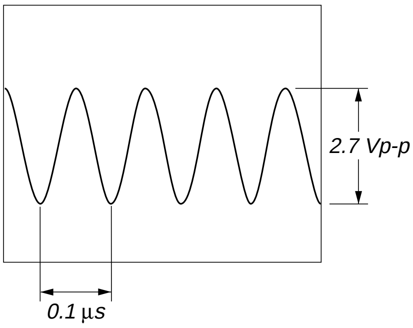
❹ IC301 ㉕ (LRCK) (MD PLAY Mode)



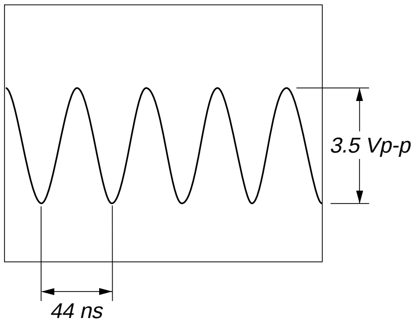
❺ IC301 ㉖ (XBCK) (MD PLAY Mode)



❻ IC501 ㉛ (EXTAL) (MD PLAY Mode)

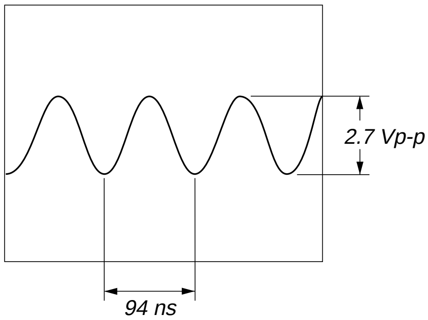


❼ IC304 ③ (IN) (MD PLAY Mode)

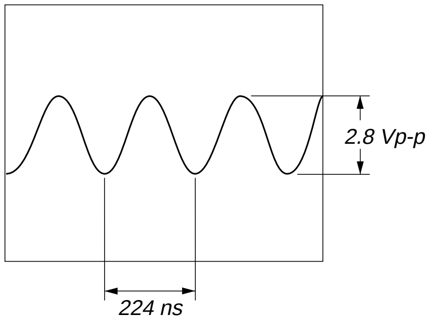


– MAIN Board –

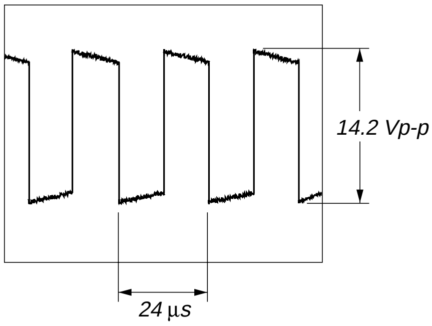
❶ IC100 ⑨ (OSC IN) (FM/AM (MW) Mode)



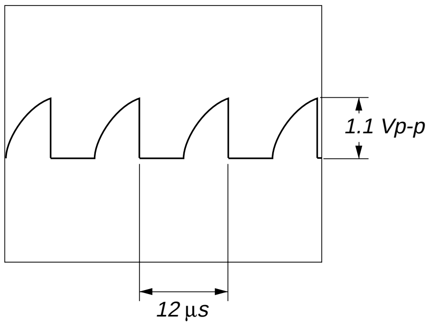
❷ IC102 ⑤ (OSC1) (FM Mode)



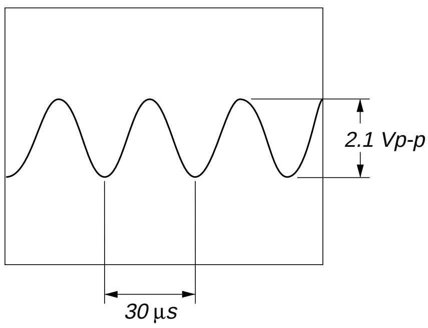
❸ IC250 ② SWE (MD PLAY Mode)



❹ IC250 ③ TC (MD PLAY Mode)

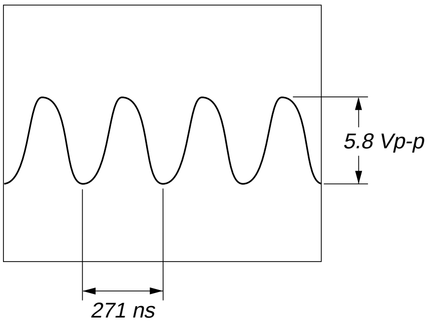


❺ IC700 ⑭ (XOA)

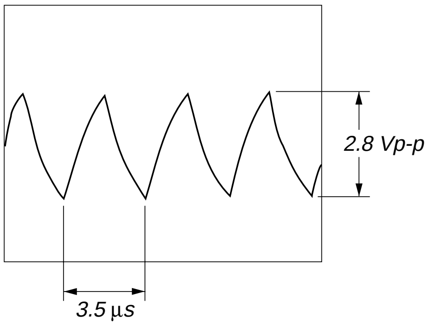


– KEY Board –

❻ IC700 ⑲③ (X1)



❶ IC801 ⑳ (OSC IN)



4-21. IC PIN FUNCTION DESCRIPTION

• SERVO BOARD IC301 CXD2652AR
(DIGITAL SIGNAL PROCESSOR, DIGITAL SERVO PROCESSOR, EFM/ACIRC ENCODER/DECODER, SHOCK PROOF MEMORY CONTROLLER, ATRAC ENCODER/DECODER, 2M BIT D-RAM)

Pin No.	Pin Name	I/O	Function
1	MNT0	O	Focus OK signal output to the MD mechanism controller (IC501) "H" is output when focus is on ("L": NG)
2	MNT1	O	Track jump detection signal output to the MD mechanism controller (IC501)
3	MNT2	O	Busy monitor signal output to the MD mechanism controller (IC501)
4	MNT3	O	Spindle servo lock status monitor signal output to the MD mechanism controller (IC501)
5	SWDT	I	Writing serial data signal input from the MD mechanism controller (IC501)
6	SCLK	I	Serial data transfer clock signal input from the MD mechanism controller (IC501)
7	XLAT	I	Serial data latch pulse signal input from the MD mechanism controller (IC501)
8	SRDT	O (3)	Reading serial data signal output to the MD mechanism controller (IC501)
9	SENS	O (3)	Internal status (SENSE) output to the MD mechanism controller (IC501)
10	$\overline{\text{XRST}}$	I	Reset signal input from the MD mechanism controller (IC501) "L": reset
11	SQSY	O	Subcode Q sync (SCOR) output to the MD mechanism controller (IC501) "L" is output every 13.3 msec Almost all, "H" is output
12	DQSY	O	Digital In U-bit CD format subcode Q sync (SCOR) output terminal "L" is output every 13.3 msec Almost all, "H" is output Not used (open)
13	RECP	I	Laser power selection signal input terminal "L": playback mode, "H": recording mode (fixed at "L" in this set)
14	XINT	O	Interrupt status output to the MD mechanism controller (IC501)
15	TX	I	Recording data output enable signal input terminal Writing data transmission timing input (Also serves as the magnetic head on/off output) Not used (fixed at "L")
16	OSCI	I	System clock signal (512Fs=22.5792 MHz) input from the oscillator circuit
17	OSCO	O	System clock signal (512Fs=22.5792 MHz) output terminal Not used (open)
18	XTSL	I	Input terminal for the system clock frequency setting "L": 45.1584 MHz, "H": 22.5792 MHz (fixed at "H" in this set)
19	RVDD	—	Power supply terminal (+3.3V) (digital system)
20	RVSS	—	Ground terminal (digital system)
21	DIN	I	Digital audio signal input terminal when recording mode Not used (fixed at "L")
22	DOUT	O	Digital audio signal output terminal when playback mode Not used (open)
23	ADDT	I	Recording data input terminal Not used (fixed at "L")
24	DADT	O	Playback data output to the PCM1718E (IC101)
25	LRCK	O	L/R sampling clock signal (44.1 kHz) output to the PCM1718E (IC101)
26	XBCK	O	Bit clock signal (2.8224 MHz) output to the PCM1718E (IC101)
27	FS256	O	Clock signal (11.2896 MHz) output to the PCM1718E (IC101)
28	DVDD	—	Power supply terminal (+3.3V) (digital system)
29 to 32	A03 to A00	O	Address signal output to the D-RAM (IC307)
33	A10	O	Address signal output to the external D-RAM Not used (open)
34 to 38	A04 to A08	O	Address signal output to the D-RAM (IC307)
39	A11	O	Address signal output to the external D-RAM Not used (open)
40	DVSS	—	Ground terminal (digital system)
41	$\overline{\text{XOE}}$	O	Output enable signal output to the D-RAM (IC307) "L" active
42	$\overline{\text{XCAS}}$	O	Column address strobe signal output to the D-RAM (IC307) "L" active
43	A09	O	Address signal output to the D-RAM (IC307)
44	$\overline{\text{XRAS}}$	O	Row address strobe signal output to the D-RAM (IC307) "L" active
45	$\overline{\text{XWE}}$	O	Write enable signal output to the D-RAM (IC307) "L" active

Pin No.	Pin Name	I/O	Function
46	D1	I/O	Two-way data bus with the D-RAM (IC307)
47	D0	I/O	
48	D2	I/O	
49	D3	I/O	
50	MVCI	I	Digital in PLL oscillation input from the external VCO Not used (fixed at “L”)
51	ASYO	O	Playback EFM full-swing output terminal
52	ASYI	I (A)	Playback EFM asymmetry comparator voltage input terminal
53	AVDD	—	Power supply terminal (+3.3V) (analog system)
54	BIAS	I (A)	Playback EFM asymmetry circuit constant current input terminal
55	RFI	I (A)	Playback EFM RF signal input from the CXA2523R (IC302)
56	AVSS	—	Ground terminal (analog system)
57	PDO	O (3)	Phase comparison output for clock playback analog PLL of the playback EFM Not used (open)
58	PCO	O (3)	Phase comparison output for master clock of the recording/playback EFM master PLL
59	FILI	I (A)	Filter input for master clock of the recording/playback master PLL
60	FILO	O (A)	Filter output for master clock of the recording/playback master PLL
61	CLTV	I (A)	Internal VCO control voltage input of the recording/playback master PLL
62	PEAK	I (A)	Light amount signal (RF/ABCD) peak hold input from the CXA2523R (IC302)
63	BOTM	I (A)	Light amount signal (RF/ABCD) bottom hold input from the CXA2523R (IC302)
64	ABCD	I (A)	Light amount signal (ABCD) input from the CXA2523R (IC302)
65	FE	I (A)	Focus error signal input from the CXA2523R (IC302)
66	AUX1	I (A)	Auxiliary signal (I_3 signal/temperature signal) input terminal Not used (fixed at “H”)
67	VC	I (A)	Middle point voltage (+1.65V) input from the CXA2523R (IC302)
68	ADIO	O (A)	Monitor output of the A/D converter input signal Not used (open)
69	AVDD	—	Power supply terminal (+3.3V) (analog system)
70	ADRT	I (A)	A/D converter operational range upper limit voltage input terminal (fixed at “H” in this set)
71	ADRB	I (A)	A/D converter operational range lower limit voltage input terminal (fixed at “L” in this set)
72	AVSS	—	Ground terminal (analog system)
73	SE	I (A)	Sled error signal input from the CXA2523R (IC302)
74	TE	I (A)	Tracking error signal input from the CXA2523R (IC302)
75	AUX2	I (A)	Auxiliary signal input terminal Light amount signal input from the CXA2523R (IC302)
76	DCHG	I (A)	Connected to the +3.3V power supply
77	APC	I (A)	Error signal input for the laser automatic power control Not used (fixed at “L”)
78	ADFG	I	ADIP duplex FM signal (22.05 kHz ± 1 kHz) input from the CXA2523R (IC302)
79	F0CNT	O	Filter f0 control signal output terminal Not used (open)
80	XLRF	O	Serial data latch pulse signal output terminal Not used (open)
81	CKRF	O	Serial data transfer clock signal output terminal Not used (open)
82	DTRF	O	Writing serial data output terminal Not used (open)
83	APCREF	O	Control signal output to the reference voltage generator circuit for the laser automatic power control
84	LDDR	O	PWM signal output for the laser automatic power control Not used (open)
85	TRDR	O	Tracking servo drive PWM signal (–) output to the BH6511FS (IC303)
86	TFDR	O	Tracking servo drive PWM signal (+) output to the BH6511FS (IC303)
87	DVDD	—	Power supply terminal (+3.3V) (digital system)
88	FFDR	O	Focus servo drive PWM signal (+) output to the BH6511FS (IC303)
89	FRDR	O	Focus servo drive PWM signal (–) output to the BH6511FS (IC303)
90	FS4	O	Clock signal (176.4 kHz) output terminal (X’tal system) Not used (open)
91	SRDR	O	Sled servo drive PWM signal (–) output to the BH6511FS (IC303)

Pin No.	Pin Name	I/O	Function
92	SFDR	O	Sled servo drive PWM signal (+) output to the BH6511FS (IC303)
93	SPRD	O	Spindle servo drive PWM signal (–) output to the BH6511FS (IC303)
94	SPFD	O	Spindle servo drive PWM signal (+) output to the BH6511FS (IC303)
95	FGIN	I	Not used (fixed at "L")
96	TEST1	I	Input terminal for the test (fixed at "L")
97	TEST2	I	
98	TEST3	I	
99	DVSS	—	Ground terminal (digital system)
100	EFMO	O	EFM signal output terminal when recording mode Not used (open)

* I (A) for analog input, O (3) for 3-state output, and O (A) for analog output in the column I/O.

• **SERVO BOARD IC302 CXA2523R (RF AMP, FOCUS/TRACKING ERROR AMP)**

Pin No.	Pin Name	I/O	Function
1	I	I	I-V converted RF signal I input from the optical pick-up block detector
2	J	I	I-V converted RF signal J input from the optical pick-up block detector
3	VC	O	Middle point voltage (+1.65V) generation output terminal
4 to 9	A to F	I	Signal input from the optical pick-up detector
10	PD	I	Light amount monitor input from the optical pick-up block laser diode
11	APC	O	Laser amplifier output terminal to the automatic power control circuit
12	APCREF	I	Reference voltage input terminal for setting laser power
13	GND	—	Ground terminal
14	TEMPI	I	Connected to the temperature sensor Not used (open)
15	TEMPR	O	Output terminal for a temperature sensor reference voltage Not used (open)
16	SWDT	I	Writing serial data input from the MD mechanism controller (IC501)
17	SCLK	I	Serial data transfer clock signal input from the MD mechanism controller (IC501)
18	XLAT	I	Serial data latch pulse signal input from the MD mechanism controller (IC501)
19	$\overline{\text{XSTBY}}$	I	Standby signal input terminal “L”: standby (fixed at “H” in this set)
20	F0CNT	I	Center frequency control voltage input terminal of internal circuit (BPF22, BPF3T, EQ) input terminal
21	VREF	O	Reference voltage output terminal Not used (open)
22	EQADJ	I	Center frequency setting terminal for the internal circuit (EQ)
23	3TADJ	I	Center frequency setting terminal for the internal circuit (BPF3T)
24	VCC	—	Power supply terminal (+3.3V)
25	WBLADJ	I	Center frequency setting terminal for the internal circuit (BPF22)
26	TE	O	Tracking error signal output to the CXD2652AR (IC301)
27	CSLED	I	Connected to the external capacitor for low-pass filter of the sled error signal
28	SE	O	Sled error signal output to the CXD2652AR (IC301)
29	ADFM	O	FM signal output of the ADIP
30	ADIN	I	Receives a ADIP FM signal in AC coupling
31	ADAGC	I	Connected to the external capacitor for ADIP AGC
32	ADFG	O	ADIP duplex signal (22.05 kHz ± 1 kHz) output to the CXD2652AR (IC301)
33	AUX	O	Auxiliary signal (I_3 signal/temperature signal) output terminal Not used (open)
34	FE	O	Focus error signal output to the CXD2652AR (IC301)
35	ABCD	O	Light amount signal (ABCD) output to the CXD2652AR (IC301)
36	BOTM	O	Light amount signal (RF/ABCD) bottom hold output to the CXD2652AR (IC301)
37	PEAK	O	Light amount signal (RF/ABCD) peak hold output to the CXD2652AR (IC301)
38	RF	O	Playback EFM RF signal output to the CXD2652AR (IC301)
39	RFAGC	I	Connected to the external capacitor for RF auto gain control circuit
40	AGCI	I	Receives a RF signal in AC coupling
41	COMPO	O	User comparator output terminal Not used (open)
42	COMPP	I	User comparator input terminal Not used (fixed at “L”)
43	ADDC	I	Connected to the external capacitor for cutting the low band of the ADIP amplifier
44	OPO	O	User operational amplifier output terminal Not used (open)
45	OPN	I	User operational amplifier inversion input terminal Not used (fixed at “L”)
46	RFO	O	RF signal output terminal
47	MORFI	I	Receives a MO RF signal in AC coupling
48	MORFO	O	MO RF signal output terminal

• **SERVO BOARD IC501 CXP84340-201Q (MD MECHANISM CONTROLLER)**

Pin No.	Pin Name	I/O	Function
1 to 5	TIN3 to TIN7	I/O	Input of the 4×8 matrix test keys (“L” is always output, except in test mode) Not used (open)
6	LOAD	O	Loading motor control signal output to the motor driver (IC305) “H” active *1
7	EJECT	O	Loading motor control signal output to the motor driver (IC305) “H” active *1
8, 9	NCO	O	Not used (open)
10	MDMON	O	Power supply on/off control signal output of the MD mechanism deck section main power supply and loading motor drive (IC305) power supply “H”: power on
11	$\overline{\text{E-SW}}$	I	Inputs the disc loading completion detect switch detection signal “L”: When completed of the disc loading operation
12	AG-OK	O	Output of aging status in test mode “L”: under aging, “H”: aging completed Not used (open)
13	ADJ-OK	O	Output of status when aging completed in test mode “L”: aging NG, “H”: aging OK Not used (open)
14 to 17	NCO	O	Not used (open)
18	DFCTSEL	I	Select whether defect function is used for the CXD2652AR (IC301) “L”: used this function , “H”: not used this function (fixed at “H” in this set)
19	DPLLSEL	I	Select whether digital PLL function is used for the CXD2652AR (IC301) “L”: used this function , “H”: not used this function (fixed at “H” in this set)
20	EMPHSEL	I	Select whether emphasis signal output from pin or unilink data “L”: outputs from both pin and unilink data, “H”: output from pin only (fixed at “H” in this set)
21	LOCK	O	Mini-disc lock detection signal output to the master controller (IC700) “H”: lock
22	NCO	O	Not used (open)
23	2M/$\overline{\text{4M}}$	I	Select whether D-RAM capacitance 2M bit or 4M bit “L”: 4M bit (external D-RAM) , “H”: 2M bit (internal D-RAM of CXD2652AR) (fixed at “L” in this set)
24, 25	NCO	O	Not used (open)
26	MNT0	I	Focus OK signal input from the CXD2652AR (IC301) “H” is input when focus is on (“L”: NG)
27	MNT1	I	Track jump detection signal input from the CXD2652AR (IC301)
28	MNT2	I	Busy monitor signal input from the CXD2652AR (IC301)
29	MNT3	I	Spindle servo lock status monitor signal input from the CXD2652AR (IC301)
30	$\overline{\text{RESET}}$	I	System reset signal input from the master controller (IC700), reset signal generator (IC801) and reset switch (S900) “L”: reset For several hundreds msec. after the power supply rises, “L” is input, then it changes to “H”
31	EXTAL	O	Main system clock output terminal (10 MHz)
32	XTAL	I	Main system clock input terminal (10 MHz)
33	VSS	—	Ground terminal
34	TX	O	Sub system clock output terminal (32.768 kHz) Not used (open)
35	TEX	I	Sub system clock input terminal (32.768 kHz) Not used (fixed at “L”)
36	AVSS	—	Ground terminal (for A/D converter)
37	AVREF	I	Reference voltage input terminal (+5V) (for A/D converter)
38	INIT	I	Initial reset signal input terminal (A/D input) (fixed at “H”)
39	TEMP	I	Temperature sensor (TH501) input terminal (A/D input)
40	ACNT	I	Select the number of load/eject aging times (A/D input) 0H – 54H (30 times), 55H – OA9H (20 times), OAAH – OFFH (10 times)
41	DO-SEL	I	Select the digital output bits (A/D input)
42	EE-CS	O	Chip select signal output to the external EEPROM device Not used (open)
43	EE-CKO	O	Serial data transfer clock signal output to the external EEPROM device Not used (open)
44	EE-SIO	I/O	Two way data bus with the external EEPROM device Not used (open)
45	MD-SO	O	Writing serial data signal output to the CXD2652AR (IC301) and CXA2523R (IC302)
46	LINKOFF	O	Unilink on/off control signal output for the SONY bus “L”: link on, “H”: link off

Pin No.	Pin Name	I/O	Function
47	UNIREQ	O	Data request signal output terminal (for SONY bus) "H": request on Not used (open)
48	UNICKIO	I/O	Serial clock signal input from the master controller (IC700) or serial clock signal output to the SONY bus interface (IC600) and master controller (IC700) (for SONY bus)
49	UNISI	I	Serial data input from the SONY bus interface (IC600)
50	UNISO	O	Serial data output to the SONY bus interface (IC600)
51	MD-CKO	O	Serial data transfer clock signal output to the CXD2652AR (IC301) and CXA2523R (IC302)
52	MD-SI	I	Reading serial data signal input from the CXD2652AR (IC301)
53	NCO	O	Not used (open)
54	SENS	I	Internal status (SENSE) input from the CXD2652AR (IC301)
55	CC-XINT	I	Interrupt status input from the CXD2652AR (IC301)
56	$\overline{\text{LIMIT-IN}}$	I	Detection input from the sled limit-in detect switch The optical pick-up is inner position when "L"
57	EJT-KEY	I	Eject request signal input terminal "L": eject on Not used (fixed at "H")
58	ERROR-PWM	O	PWM error monitor output terminal (C1and ATER is output when test mode) Not used (open)
59	$\overline{\text{MD-RST}}$	O	Reset signal output to the PCM1718E (IC101), CXD2652AR (IC301) and BH6511FS (IC303) "L": reset
60	BU-IN	I	Battery detect signal input from the SONY bus interface (IC600) and battery check circuit "H": battery on
61	$\overline{\text{BUS-ON}}$	I	SONY bus on/off control signal input from the master controller (IC700) "L": bus on
62	SQSY	I	Subcode Q sync (SCOR) input from the CXD2652AR (IC301) "L" is input every 13.3 msec Almost all, "H" is input
63	$\overline{\text{C-SW}}$	I	Inputs the disc loading start or disc eject completion detect switch detection signal "L": When start or eject completed of the disc loading operation
64	MD-LAT	O	Serial data latch pulse signal output to the CXD2652AR (IC301) and CXA2523R (IC302)
65	MD-ON	O	Power supply on/off control signal output of the MD mechanism deck section main power supply "H": power on
66	DEEMP	O	Emphasis on/off control signal output to the PCM1718E (IC101) "H": emphasis on
67	A-MUTE	O	Audio muting on/off control signal output terminal
68	NCO	O	Not used (open)
69	TSTCKO	O	Output of clock signal for the test mode display Not used (open)
70	TSTSO	O	Output of data for the test mode display Not used (open)
71	$\overline{\text{TSTMOD}}$	I	Setting terminal for the test mode "L": test mode, "H": normal mode
72	VCC	—	Power supply terminal (+5V)
73	NIL	I	Not used (fixed at "H")
74 to 77	TOUT0 to TOUT3	O	Output of the 4×8 matrix test keys Not used (open)
78 to 80	TIN0 to TIN2	I/O	Input of the 4×8 matrix test keys ("L" is always output, except in test mode) Not used (open)

*1 Loading motor (M903) control

Terminal \ Operation	IN	OUT	BRAKE	STOP
LOAD (pin ⑥)	"H"	"L"	"H"	"L"
EJECT (pin ⑦)	"L"	"H"	"H"	"L"

• **MAIN BOARD IC700 (MASTER CONTROLLER)**
MB90574PFV-G-186-BND (MDX-C7970R) MB90574PFV-G-185-BND (MDX-C7970)

Pin No.	Pin Name	I/O	Function
1 to 7	NC	O	Not used (open)
8	VCC	—	Power supply terminal (+5V)
9	PLL SI	I	PLL serial data input terminal Not used (open)
10	PLL SO	O	PLL serial data output terminal Not used (open)
11	PLL CKO	O	PLL serial data transfer clock signal output terminal Not used (open)
12	$\overline{\text{DOOR-SW}}$	I	Front panel block remove/attach detection signal input terminal “L”: front panel is attached
13	LCD SO	O	Serial data output to the liquid crystal display driver (IC501)
14	LCD CKO	O	Serial data transfer clock signal output to the liquid crystal display driver (IC501)
15	BEEP	O	Beep sound drive signal output terminal
16	DBMOD2	O	D-BASS mode control signal output terminal Not used (open)
17	$\overline{\text{NOSE-SW}}$	I	Front panel open/close detection switch (S901) input “L” is input when the front panel is closed
18, 19	NC	O	Not used (open)
20	UNI SI	I	Serial data input from the SONY bus interface (IC600)
21	UNI SO	O	Serial data output to the SONY bus interface (IC600)
22	UNI CKIO	I/O	Serial clock signal output to the MD mechanism controller (IC501) and SONY bus interface (IC600) or serial clock signal input from the MD mechanism controller (IC501) (for SONY bus)
23	NC	O	Not used (open)
24	SIRCS	I	Sircs remote control signal input from the remote control receiver (IC502)
25	PACK-IND	O	LED drive signal output of the MD disc slot illumination and ⏏ indicator (LED891, LSW890) “H”: LED on “H” is output to turn on LED when front panel is opened
26	VOL SO	O	Serial data output for the electrical volume Not used (open)
27	VOL CKO	O	Serial data transfer clock signal output for the electrical volume Not used (open)
28	DSTSEL0	I	Destination setting terminal (Except German models: fixed at “H”, German model: fixed at “L”)
29	$\overline{\text{SYSRST}}$	O	System reset signal output to the MD mechanism controller (IC501) and SONY bus interface (IC600) “L”: reset
30	DSTSEL1	I	Destination setting terminal (US, Canadian models: fixed at “H”, E model: fixed at “L”)
31	DBMOD1	O	D-BASS mode control signal output terminal Not used (open)
32	$\overline{\text{TESTIN}}$	I	Setting terminal for the test mode “L”: test mode, Normally: fixed at “H”
33	VSS	—	Ground terminal
34	C	—	Connected to coupling capacitor for the power supply
35	NS-MASK	O	Discharge control signal output for the noise detection circuit “H”: discharge Used for the MDX-C7970R only (MDX-C7970: Not used (open))
36	$\overline{\text{BUS- ON}}$	O	Bus on/off control signal output to the MD mechanism controller (IC501) and SONY bus interface (IC600) “L”: bus on
37	$\overline{\text{AD-ON}}$	O	A/D converter power control signal output terminal When the KEYACK (pin 79) that controls reference voltage power for key A/D conversion input is active, “L” is output from this terminal to enable the input
38	DVCC	—	Power supply terminal (+5V) (for D/A converter)
39	DVSS	—	Ground terminal (for D/A converter)
40	LCDANG	O	View field angle control signal is output when front panel is fully opened “H”: front panel is fully opened
41	VOL CE	O	Chip enable signal output for the electrical volume Not used (open)
42	AVCC	—	Power supply terminal (+5V) (for A/D converter)

Pin No.	Pin Name	I/O	Function
43	AVRH	I	Reference voltage (+5V) input terminal (for A/D converter)
44	AVRL	I	Reference voltage (0V) input terminal (for A/D converter)
45	AVSS	—	Ground terminal (for A/D converter)
46	KEY-IN0	I	Key input terminal (A/D input) (LSW531, LSW532, S502, LSW533 to LSW538) OFF, SOURCE, SEEK/AMS ⏭ ⏩ + ⏮ ⏪ – , DSPL, SOUND, MODE, SHIFT, 1, 2 keys input (LSW533 DSPL: MDX-C7970R only)
47	KEY-IN1	I	Key input terminal (A/D input) (LSW890, LSW512 to LSW521) ⏏, AF/TA (MDX-C7970R) LIST (MDX-C7970), LIST PTY (MDX-C7970R) DSPL (MDX-C7970), 10 to 3 keys input
48	KEY-IN2	I	Key input terminal (A/D input) Not used (fixed at “L”)
49	RC-IN0	I	Rotary remote commander key input terminal (A/D input)
50	D-BASS IN	I	D-BASS switch (S501) input terminal (A/D input)
51	QUALITY	I	Noise level detection signal input at SEEK mode (A/D input) Used for the MDX-C7970R only (MDX-C7970: Not used (open))
52	MPDH (MTP)	I	Multi-path detection signal input from the RDS decoder (IC102) (A/D input) Used for the MDX-C7970R only (MDX-C7970: Not used (open))
53	S-METER (VSM)	I	FM and AM signal meter voltage detection input from the FM/AM tuner unit (TU1) (A/D input)
54	VCC	—	Power supply terminal (+5V)
55	AMP ATT	O	Power amp muting on/off control signal output to the power amplifier (IC500) “L”: muting on
56	AMP ON	O	Standby on/off control signal output to the power amplifier (IC500) “L”: standby mode, “H”: amp on
57	$\overline{\text{ILL IN}}$	I	Auto dimmer control illumination line detection signal input terminal “L” is input at dimmer detection
58	LOCK IN	I	Mini-disc lock detection signal input from the MD mechanism controller (IC501) “H”: lock
59	EMPH ON	O	Emphasis control signal output terminal Not used (open)
60	AU ATT	O	Audio line muting on/off control signal output terminal “H”: muting on
61	AF ATT	O	Preamp muting on/off control signal output to the electrical volume (IC300) “H”: muting on
62	TU-ATT	O	Muting on/off control signal output of the FM tuner signal “H”: muting on Used for the MDX-C7970R only (MDX-C7970: Not used (open))
63	VSS	—	Ground terminal
64	$\overline{\text{ACC IN}}$	I	Accessory detect signal input terminal “L”: accessory on
65	AF-SEEK	O	PLL low-pass filter time constant selection signal output at AF SEEK “H” is output when AF SEEK Not used (open)
66	WIDE	O	IF band select signal output terminal “H”: wide mode In receiving FM signals, interference noise from adjacent stations is removed by narrowing the IF band automatically in the tuner unit so as to raise the selectivity, but in this case, the distortion may increase and accordingly, the IF band is widened forcibly Used for the MDX-C7970R only (MDX-C7970: Not used (open))
67	DAVN	I	Data transmit completed detect signal input from the RDS decoder (IC102) “H” active Used for the MDX-C7970R only (MDX-C7970: Not used (open))
68	NARROW	O	Narrow select signal output terminal “H” active Used for the MDX-C7970R only (MDX-C7970: Not used (open))
69	SSTOP	I	IF counter request signal input from the FM/AM PLL (IC100)
70	SDA	I/O	Two-way data bus with the FM/AM PLL (IC100), RDS decoder (IC102) and electrical volume (IC300) (RDS decoder is MDX-C7970R only)
71	SCL	O	Bus clock signal output to the FM/AM PLL (IC100), RDS decoder (IC102) and electrical volume (IC300) (RDS decoder is MDX-C7970R only)
72	RC-IN1	I	Rotary remote commander shift key input terminal “L”: shift
73	X1A	O	Sub system clock output terminal (32.768 kHz)

Pin No.	Pin Name	I/O	Function
74	X0A	I	Sub system clock input terminal (32.768 kHz)
75	NC	O	Not used (open)
76	BU-IN	I	Battery detect signal input from the SONY bus interface (IC600) and battery detect circuit “L” is input at low voltage
77, 78	NC	O	Not used (open)
79	KEYACK	I	Input of acknowledge signal for the key entry Acknowledge signal is input to accept function and eject keys in the power off status On at input of “H”
80	TEL-ATT	I	Telephone muting signal input terminal At input of “H”, the signal is attenuated by –20 dB
81	ST-MONO	I/O	FM stereo broadcasting detection signal input from the FM/AM tuner unit (TU1), or forced monaural control signal output to the FM/AM tuner unit (TU1) “L” is input in the FM stereo mode, or “L” is output in the forced monaural mode
82	$\overline{\text{SEEKOUT}}$	O	Seek control signal output to the FM/AM tuner unit (TU1) AM mode: Used for IF count output/SD output request/AGC cut at SEEK or BTM FM mode: Used for SD speed up at SEEK, BTM, or AF “L” is output at tuner off
83	SD-IN	I	Station detector detect input from the FM/AM tuner unit (TU1) Stop level for SEEK, BTM, etc. is determined SD is present at input of “H”
84	MONO	O	Not used (open)
85	PLL CE	O	PLL serial chip enable signal output terminal Not used (open)
86	HSTX	I	Hardware standby input terminal “L”: hardware standby mode Reset signal input in this set
87	MD2	I	Setting terminal for the CPU operational mode (fixed at “L” in this set)
88	MD1	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
89	MD0	I	Setting terminal for the CPU operational mode (fixed at “H” in this set)
90	$\overline{\text{RESET}}$	I	System reset signal input from the reset signal generator (IC501) and reset switch (S900) “L”: reset “L” is input for several 100 msec after power on, then it changes to “H”
91	VSS	—	Ground terminal
92	X0	I	Main system clock input terminal (3.68 MHz)
93	X1	O	Main system clock output terminal (3.68 MHz)
94	VCC	—	Power supply terminal (+5V)
95	POW-SEL	I	Power select switch input terminal “L”: off (halt mode), “H”: on (operation mode) Not used (open)
96	POL MONO	I	Polar monaural detection signal input terminal Not used (open)
97 to 99	NC	O	Not used (open)
100	BAND (9K-10K)	I	Frequency select switch (S701) input terminal “L”: MW10k step/FM 200k step, “H”: MW 9k step/FM 50k step Used for the E model only (Except E models: fixed at “H”)
101	NC	O	Not used (open)
102	$\overline{\text{RAMBU}}$	I	Internal RAM reset detection signal input from the RN5VD23AA (IC802) Input terminal to check that RAM data are not destroyed due to low voltage This checking is made within 100 msec after reset
103	NC	O	Not used (open)
104	LCD CE	O	Chip enable signal output to the liquid crystal display driver (IC501) “H” active
105	$\overline{\text{FLASH-W}}$	I	Internal flash memory data write mode detection signal input terminal “L”: data write mode Not used (fixed at “H” in this set)
106	RE-IN0	I	Dial pulse input of the rotary encoder (RE501) (for VOLUME/BASS/TREBLE/BALANCE/FADER control)
107	RE-IN1	I	
108	LAMP ON (ILL ON)	O	Power on/off control signal output of the illumination LED and liquid crystal display driver (IC501) “H”: power on
109	PW-ON	O	Main system power supply on/off control signal output to the BA3918 (IC800) “H”: power on

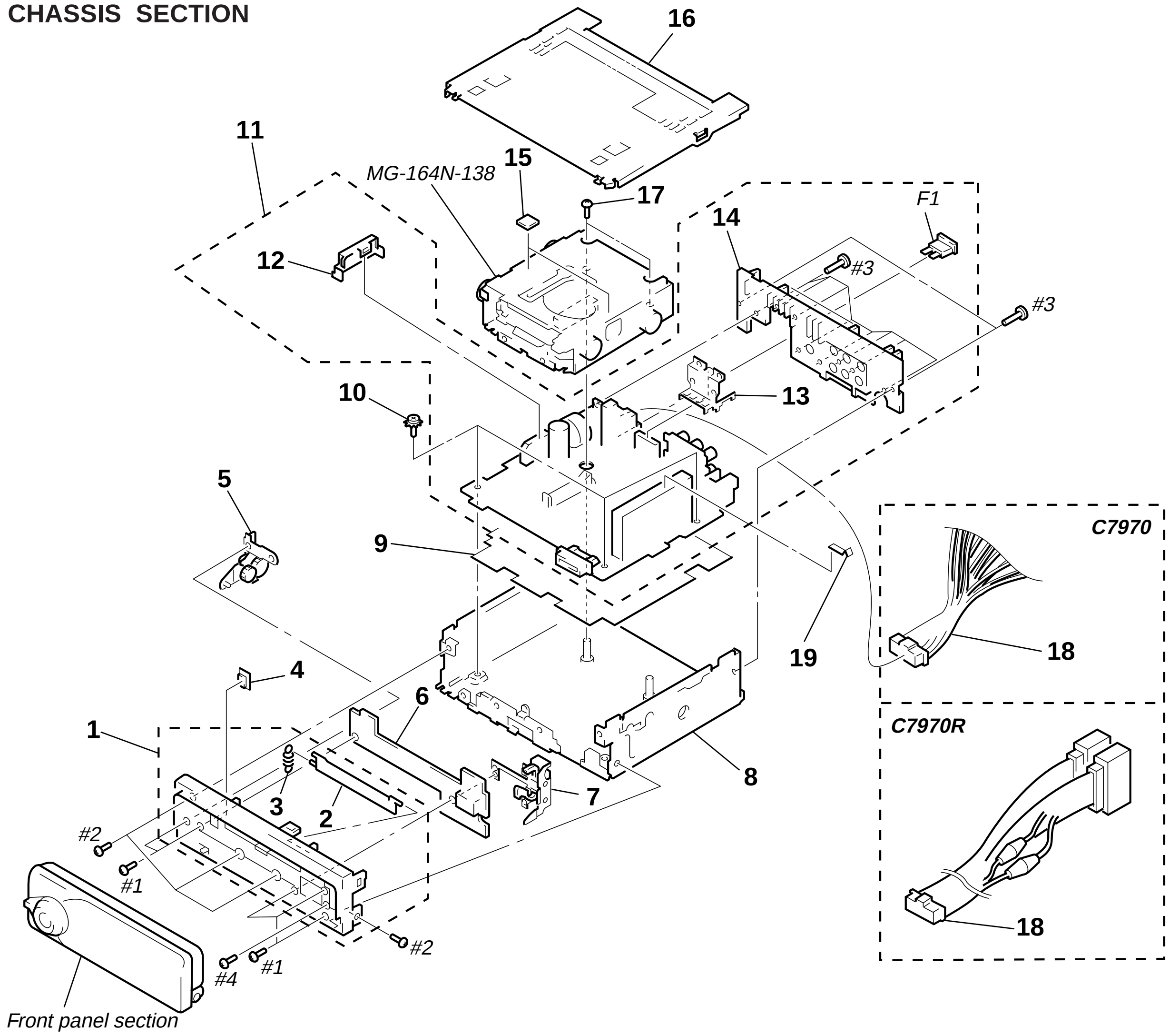
Pin No.	Pin Name	I/O	Function
110	FM-ON	O	FM system power supply on/off control signal output to the BA3918 (IC800) “L”: AM power on, “H”: FM power on
111	TU-ON	O	Tuner system power supply on/off control signal output to the BA3918 (IC800) “H”: tuner power on
112 to 118	NC	O	Not used (open)
119	VSS	—	Ground terminal
120	NC	O	Not used (open)

SECTION 5
EXPLODED VIEWS

NOTE:
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ Parts Color ↑ Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

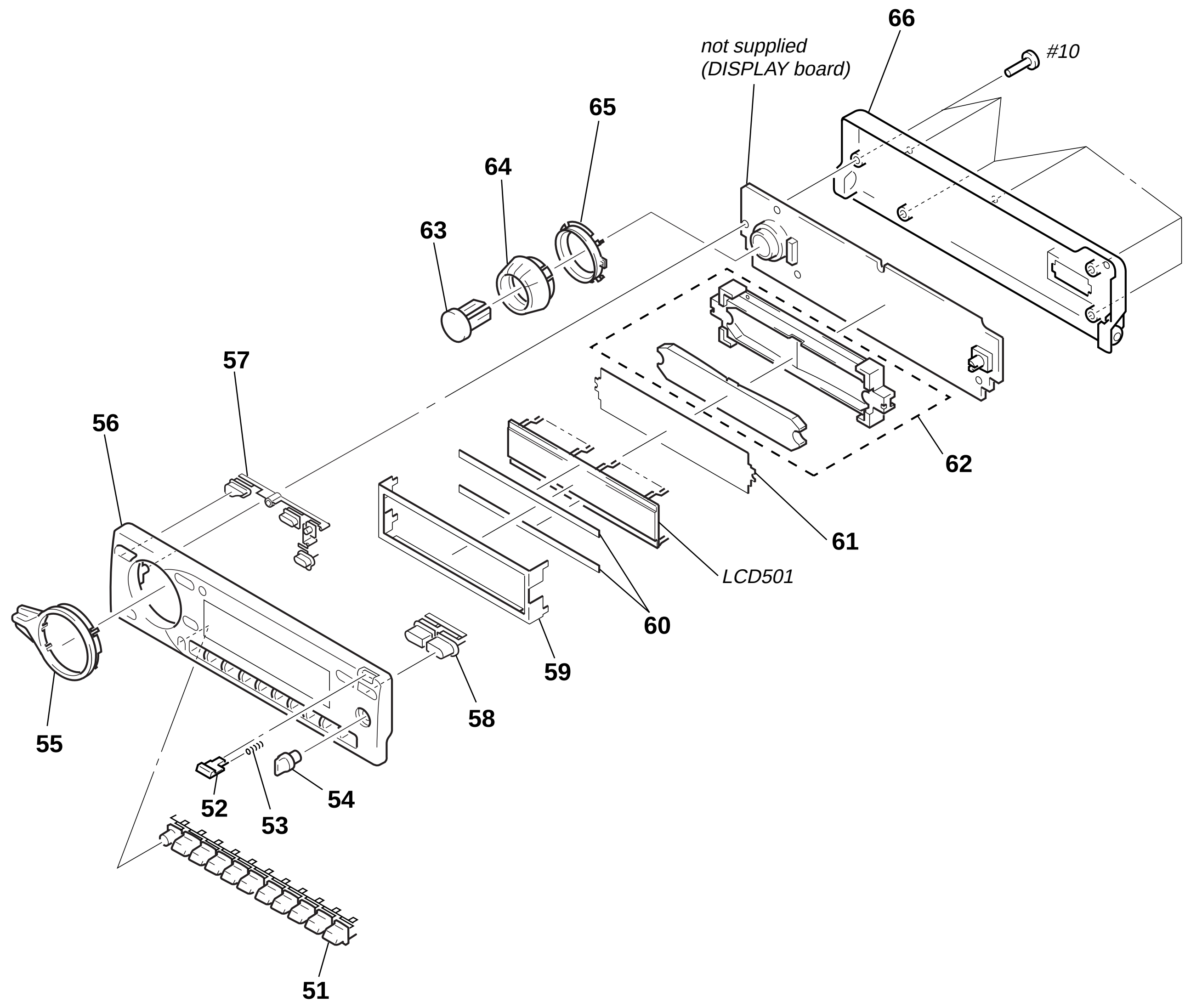
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(1) CHASSIS SECTION



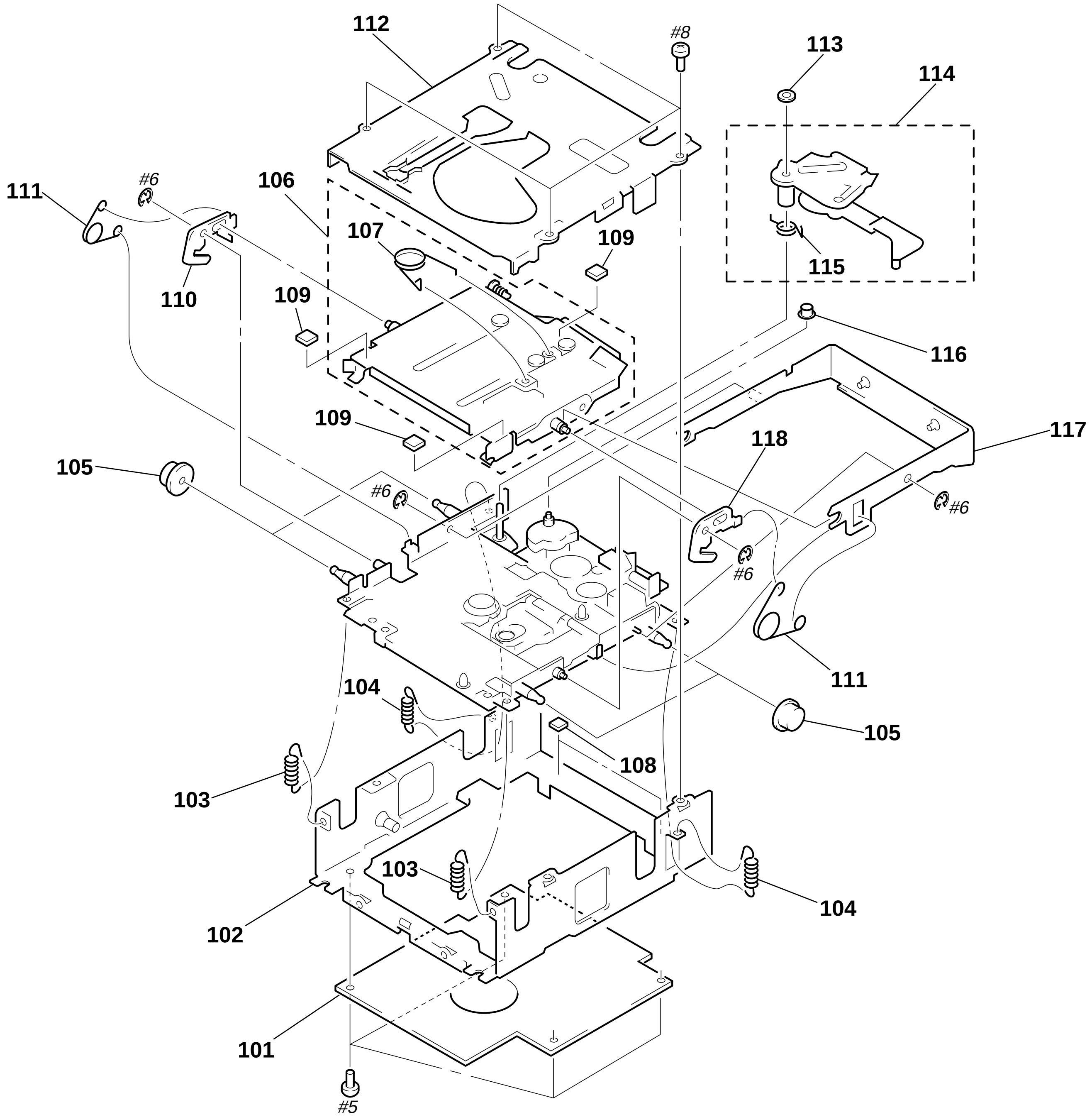
Ref. No.	Part No.	Description	Remark
1	X-3376-960-1	PANEL ASSY, SUB	
2	3-025-483-01	DOOR (MD)	
3	3-025-484-01	SPRING (DOOR)	
4	3-022-338-01	BUTTON (EJECT)	
5	X-3376-686-1	GEAR ASSY	
* 6	1-672-684-11	SUB BOARD	
7	X-3376-687-1	LOCK ASSY	
* 8	X-3376-959-1	CHASSIS ASSY	
* 9	3-033-748-01	SHEET (INSULATING)	
10	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
* 11	A-3294-651-A	MAIN BOARD, COMPLETE (C7970: US, Canadian)	
* 11	A-3294-657-A	MAIN BOARD, COMPLETE (C7970: E)	
* 11	A-3294-669-A	MAIN BOARD, COMPLETE (C7970R: AEP, UK)	
* 11	A-3294-678-A	MAIN BOARD, COMPLETE (C7970R: German)	
* 12	3-011-078-01	BRACKET (POWER IC)	
* 13	3-022-317-01	BRACKET (AMP)	
* 14	3-033-716-01	HEAT SINK	
15	3-011-999-01	CUSHION (MD)	
* 16	3-033-744-01	COVER	
17	3-932-860-01	SCREW (2.6X4) (C TIGHT), +PTT	
18	1-776-207-72	CORD (WITH CONNECTOR) (POWER) (C7970)	
18	1-776-527-71	CORD (WITH CONNECTOR) (ISO) (POWER) (C7970R)	
19	3-360-123-01	PLATE (C), GROUND	
F1	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) (10A)	

(2) FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remark
51	3-030-949-01	BUTTON (1-10) (SHIFT. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10)	
52	3-030-950-11	BUTTON (OPEN)	
53	3-032-321-01	SPRING (OPEN)	
54	3-030-966-01	KNOB (D-BASS)	
55	3-030-944-01	LEVER (SEEK/AMS) (+. -)	
56	X-3377-540-1	PANEL ASSY, FRONT (C7970R)	
56	X-3377-541-1	PANEL ASSY, FRONT (C7970)	
57	3-030-904-01	BUTTON (MODE) (MODE. SOUND. DSPL. OFF) (C7970R)	
57	3-030-948-01	BUTTON (MODE) (MODE. SOUND. OFF) (C7970)	
58	3-030-898-01	BUTTON (PTY) (PTY. AF/TA) (C7970R)	
58	3-030-942-01	BUTTON (DSPL) (LIST. DSPL) (C7970)	
* 59	3-030-932-01	PLATE (LCD), GROUND	
* 60	3-032-271-01	SHEET (S), LCD	
* 61	3-030-933-01	SHEET (DIFFUSION)	
* 62	X-3376-697-1	HOLDER ASSY, LCD	
63	3-030-947-01	BUTTON (SOURCE)	
64	3-030-943-01	KNOB (VOL)	
65	3-030-945-01	RING	
66	X-3376-696-1	PANEL ASSY, FRONT BACK	
LCD501	1-803-444-11	DISPLAY PANEL, LIQUID CRYSTAL	

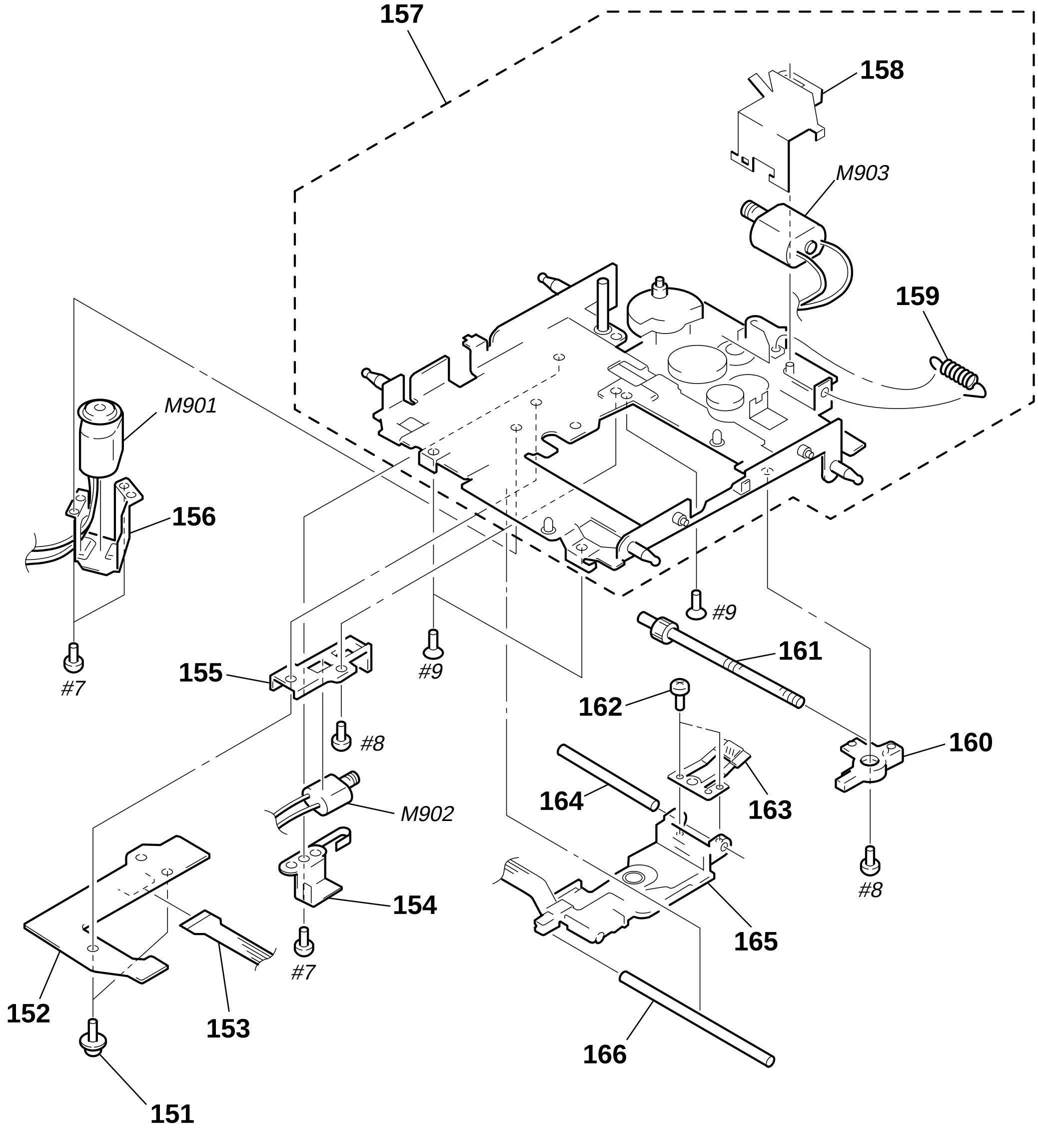
(3) MECHANISM DECK SECTION-1
(MG-164N-138)



Ref. No.	Part No.	Description	Remark
* 101	A-3317-459-A	SERVO BOARD, COMPLETE	
* 102	X-3376-799-1	CHASSIS ASSY, MD	
103	3-032-714-01	SPRING (FLOAT F), TENSION	
104	3-921-111-01	SPRING (FL 2), TENSION	
105	3-919-273-01	DAMPER, OIL	
* 106	X-3376-796-1	HOLDER ASSY	
107	3-032-682-01	SPRING (HOLDER)	
* 108	3-034-301-01	CUSHION (EJ2)	
* 109	3-034-302-01	CUSHION (EJ3)	

Ref. No.	Part No.	Description	Remark
* 110	3-032-712-01	LEVER (LOCK R)	
111	3-919-281-01	SPRING (CHUCKING)	
* 112	X-3376-800-1	COVER ASSY, MD	
113	3-035-932-01	WASHER, STOPPER	
* 114	X-3376-797-1	LEVER (LE) ASSY	
115	3-032-707-01	SPRING (LEVER LE)	
116	3-925-034-01	ROLLER (GLE)	
* 117	X-3376-798-1	ARM ASSY, CHUCKING	
* 118	3-032-711-01	LEVER (LOCK L)	

(4) MECHANISM DECK SECTION-2 (MG-164N-138)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
151	2-626-617-01	SCREW (2X8)	
152	A-3317-457-A	SENSOR BOARD, COMPLETE	
153	1-654-693-11	SENSOR FLEXIBLE BOARD	
154	3-919-283-01	BRACKET (SL)	
* 155	3-032-704-01	BASE (SL)	
156	3-919-297-01	RETAINER (SP)	
157	A-3301-750-A	CHASSIS (OP) ASSY	
158	3-032-660-01	BRACKET (LO)	
159	3-032-669-01	SPRING (RACK), TENSION	
* 160	3-032-705-01	BEARING (SL)	

Ref. No.	Part No.	Description	Remark
161	X-3373-213-1	SCREW ASSY, FEED	
162	3-703-816-32	SCREW (M1.4X1.6), SPECIAL HEAD	
163	3-010-091-01	SPRING (SL FEED)	
164	3-919-293-01	SHAFT (SL)	
⚠ 165	8-583-046-05	OPTICAL PICK-UP KMS-241B/J1RP	
166	3-920-537-01	SHAFT (SL 2)	
M901	A-3301-407-A	MOTOR ASSY, SP (SPINDLE)	
M902	A-3291-190-A	MOTOR ASSY, SL (SLED)	
M903	A-3291-191-A	MOTOR ASSY, LO (LOADING)	

SECTION 6
ELECTRICAL PARTS LIST

DISPLAY

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service.
  Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA. . : μA. . uPA. . : μPA. .
  uPB. . : μPB. . uPC. . : μPC. .
  uPD. . : μPD. .
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark
		DISPLAY BOARD	
		*************	
*	X-3376-697-1	HOLDER ASSY, LCD	
*	3-030-932-01	PLATE (LCD), GROUND	
*	3-030-933-01	SHEET (DIFFUSION)	
*	3-032-271-01	SHEET (S), LCD	
		< CAPACITOR >	
C501	1-163-037-11	CERAMIC CHIP 0.022uF 10%	25V
C502	1-110-501-11	CERAMIC CHIP 0.33uF 10%	16V
C503	1-164-489-11	CERAMIC CHIP 0.22uF 10%	16V
C504	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V
C505	1-163-021-11	CERAMIC CHIP 0.01uF 10%	50V
		< CONNECTOR >	
CNP501	1-774-945-11	PLUG, CONNECTOR 14P	
		< DIODE >	
D501	8-719-420-90	DIODE MA8051-M	
D502	8-719-420-90	DIODE MA8051-M	
D503	8-719-914-43	DIODE DAN202K	
D504	8-719-420-90	DIODE MA8051-M	
D505	8-719-422-64	DIODE MA8062-M	
D506	8-719-068-68	DIODE SDZ6V2WA	
		< IC >	
IC501	8-759-496-75	IC uPD16432BGC-018-9EU	
IC502	8-749-015-73	IC RPM6940-V4	
		< LIQUID CRYSTAL DISPLAY >	
LCD501	1-803-444-11	DISPLAY PANEL, LIQUID CRYSTAL	
		< LED >	
LED501	8-719-987-45	LED CL-155Y/PG-CD (ILLUMINATION)	
LED502	8-719-987-45	LED CL-155Y/PG-CD (ILLUMINATION)	
LED503	8-719-987-45	LED CL-155Y/PG-CD (ILLUMINATION)	
LED504	8-719-987-45	LED CL-155Y/PG-CD (ILLUMINATION)	
LED505	8-719-987-45	LED CL-155Y/PG-CD (ILLUMINATION)	
LED510	8-719-073-89	LED NSPW315BS (LCD BACK LIGHT)	
LED511	8-719-073-89	LED NSPW315BS (LCD BACK LIGHT)	

Ref. No.	Part No.	Description	Remark
		< SWITCH >	
LSW512	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (LIST)	(C7970)
LSW512	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (LIST, PTY)	(C7970R)
LSW513	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (DSPL)	(C7970)
LSW513	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (AF/TA)	(C7970R)
LSW514	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (10)	
LSW515	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (9)	
LSW516	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (8)	
LSW517	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (7)	
LSW518	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (6)	
LSW519	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (5)	
LSW520	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (4)	
LSW521	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (3)	
LSW531	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (OFF)	
LSW532	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (SOURCE)	
LSW533	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (DSPL)	(C7970R)
LSW534	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (SOUND)	
LSW535	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (MODE)	
LSW536	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (SFIFT)	
LSW537	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (1)	
LSW538	1-762-620-21	SWITCH, KEY BOARD (WITH LED) (2)	
		< TRANSISTOR >	
Q501	8-729-903-46	TRANSISTOR 2SB1132-P	
Q502	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q503	8-729-904-66	TRANSISTOR DTD113EK	
Q504	8-729-904-66	TRANSISTOR DTD113EK	
Q505	8-729-901-05	TRANSISTOR DTA124EK	
Q506	8-729-901-05	TRANSISTOR DTA124EK	
Q507	8-729-216-22	TRANSISTOR 2SA1162-G	
		< RESISTOR >	
R501	1-216-053-00	METAL CHIP 1.5K 5%	1/10W
R502	1-216-061-00	METAL CHIP 3.3K 5%	1/10W
R503	1-216-069-00	METAL CHIP 6.8K 5%	1/10W
R504	1-216-081-00	METAL CHIP 22K 5%	1/10W
R511	1-216-043-91	RES,CHIP 560 5%	1/10W
R512	1-216-045-00	METAL CHIP 680 5%	1/10W
R513	1-216-045-00	METAL CHIP 680 5%	1/10W

Ref. No.	Part No.	Description			Remark
R514	1-216-049-11	RES,CHIP	1K	5%	1/10W
R515	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R516	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R517	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R518	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R519	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R520	1-216-069-11	METAL CHIP	6.8K	5%	1/10W
R531	1-216-043-91	RES,CHIP	560	5%	1/10W
R532	1-216-045-00	METAL CHIP	680	5%	1/10W
R533	1-216-045-00	METAL CHIP	680	5%	1/10W
R534	1-216-049-11	RES,CHIP	1K	5%	1/10W
R535	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R536	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R537	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R538	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R539	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R541	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R542	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R543	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R544	1-216-030-00	METAL CHIP	160	5%	1/10W
R555	1-216-041-00	METAL CHIP	470	5%	1/10W
R556	1-216-033-00	METAL CHIP	220	5%	1/10W
R560	1-216-121-00	RES,CHIP	1M	5%	1/10W
R561	1-216-093-00	RES,CHIP	68K	5%	1/10W
R562	1-216-049-11	RES,CHIP	1K	5%	1/10W
R563	1-216-049-11	RES,CHIP	1K	5%	1/10W
R564	1-216-049-11	RES,CHIP	1K	5%	1/10W
R565	1-216-049-11	RES,CHIP	1K	5%	1/10W
R566	1-216-089-00	RES,CHIP	47K	5%	1/10W
R567	1-216-089-00	RES,CHIP	47K	5%	1/10W
R568	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R569	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R570	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R571	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R572	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R573	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R574	1-216-061-00	METAL CHIP	3.3K	5%	1/10W (C7970)
R574	1-216-065-00	RES,CHIP	4.7K	5%	1/10W (C7970R)
R581	1-216-033-00	METAL CHIP	220	5%	1/10W
R582	1-216-037-00	METAL CHIP	330	5%	1/10W
R583	1-216-025-00	RES,CHIP	100	5%	1/10W
R584	1-216-029-00	METAL CHIP	150	5%	1/10W
R585	1-216-025-00	RES,CHIP	100	5%	1/10W
R586	1-216-029-00	METAL CHIP	150	5%	1/10W
R587	1-216-025-00	RES,CHIP	100	5%	1/10W
R588	1-216-029-00	METAL CHIP	150	5%	1/10W
R589	1-216-025-00	RES,CHIP	100	5%	1/10W
R590	1-216-029-00	METAL CHIP	150	5%	1/10W
R591	1-216-025-00	RES,CHIP	100	5%	1/10W (C7970R)
R591	1-216-033-00	METAL CHIP	220	5%	1/10W (C7970)
R592	1-216-029-00	METAL CHIP	150	5%	1/10W (C7970R)
R592	1-216-037-00	METAL CHIP	330	5%	1/10W (C7970)
R593	1-216-049-11	RES,CHIP	1K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R594	1-216-049-11	RES,CHIP	1K	5%	1/10W
R599	1-216-025-00	RES,CHIP	100	5%	1/10W
		< ROTARY ENCODER >			
RE501	1-475-014-11	ENCODER, ROTARY (VOLUME/BASS/TREBLE/ BALANCE/FADER CONTROL)			
		< SWITCH >			
S501	1-762-937-11	SWITCH, ROTARY (D-BASS)			
S502	1-771-290-11	SWITCH, SLIDE (▶▶I ▶▶ +, - I◀◀ ◀◀: SEEK/AMS)			

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Ref. No.	Part No.	Description			Remark
*	A-3294-651-A	MAIN BOARD, COMPLETE (C7970: US, Canadian)			
*	A-3294-657-A	MAIN BOARD, COMPLETE (C7970: E)			
*	A-3294-669-A	MAIN BOARD, COMPLETE (C7970R: AEP, UK)			
*	A-3294-678-A	MAIN BOARD, COMPLETE (C7970R: German)			
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*	3-011-078-01	BRACKET (POWER IC)			
*	3-022-317-01	BRACKET (AMP)			
*	3-033-716-01	HEAT SINK			
	7-685-794-09	SCREW +PTT 2.6X10 (S)			
		< BUZZER >			
BZ1	1-504-920-11	BUZZER			
		< CAPACITOR >			
C1	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C2	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C3	1-162-587-11	CERAMIC CHIP	0.039uF	10%	25V
C4	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C5	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V (C7970: E)
C5	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V (C7970: US, Canadian)
C5	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V (C7970R)
C6	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V (C7970: E)
C6	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V (C7970: US, Canadian)
C6	1-163-024-00	CERAMIC CHIP	0.018uF	10%	50V (C7970R)
C7	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C8	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C10	1-126-791-11	ELECT	10uF	20%	16V
C11	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C12	1-163-137-00	CERAMIC CHIP	680PF	5%	50V
C13	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C14	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C15	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C16	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C17	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (C7970R)

Ref. No.	Part No.	Description			Remark
C17	1-163-251-11	CERAMIC CHIP	100PF	5%	50V (C7970)
C18	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C19	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C20	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V
C21	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C22	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C23	1-164-344-11	CERAMIC CHIP	0.068uF	10%	25V
C24	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (C7970R)
C24	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V (C7970)
C25	1-126-794-11	ELECT	4.7uF	20%	25V
C26	1-126-382-11	ELECT	100uF	20%	16V
C27	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C28	1-126-382-11	ELECT	100uF	20%	16V
C29	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C30	1-126-382-11	ELECT	100uF	20%	16V
C31	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C32	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C35	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C39	1-163-699-11	CERAMIC CHIP	0.0033uF	10%	50V (C7970)
C40	1-126-382-11	ELECT	100uF	20%	16V
C41	1-163-251-11	CERAMIC CHIP	100PF	5%	50V (C7970)
C42	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V (C7970)
C43	1-163-251-11	CERAMIC CHIP	100PF	5%	50V (C7970)
C44	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V (C7970R)
C45	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V (C7970R)
C46	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V (C7970R)
C47	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V (C7970R)
C48	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V (C7970R)
C49	1-163-133-00	CERAMIC CHIP	470PF	5%	50V (C7970R)
C50	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (C7970R)
C51	1-163-133-00	CERAMIC CHIP	470PF	5%	50V (C7970R)
C52	1-163-229-11	CERAMIC CHIP	12PF	5%	50V (C7970R)
C53	1-163-229-11	CERAMIC CHIP	12PF	5%	50V (C7970R)
C54	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V (C7970R)
C57	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V (C7970R)
C58	1-163-135-00	CERAMIC CHIP	560PF	5%	50V (C7970R)
C59	1-164-505-11	CERAMIC CHIP	2.2uF		16V (C7970R)
C60	1-163-263-11	CERAMIC CHIP	330PF	5%	50V (C7970R)
C61	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (C7970R)
C62	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V (C7970R)
C63	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (C7970R)
C65	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V (C7970R)
C66	1-126-786-11	ELECT	47uF	20%	16V
C67	1-126-382-11	ELECT	100uF	20%	16V
C68	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C69	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C70	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C71	1-126-514-11	ELECT	22uF	20%	16V
C74	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C79	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (C7970R)
C82	1-163-137-00	CERAMIC CHIP	680PF	5%	50V (C7970R)
C90	1-164-346-11	CERAMIC CHIP	1uF		16V (C7970R)
C97	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C100	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C101	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C107	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (C7970R)
C222	1-126-791-11	ELECT	10uF	20%	16V
C223	1-126-791-11	ELECT	10uF	20%	16V
C230	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C250	1-126-767-11	ELECT	1000uF	20%	16V
C251	1-124-635-00	ELECT	220uF	20%	6.3V
C252	1-163-125-00	CERAMIC CHIP	220PF	5%	50V
C253	1-126-382-11	ELECT	100uF	20%	16V
C256	1-126-791-11	ELECT	10uF	20%	16V
C257	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C300	1-115-871-11	ELECT	1uF	20%	50V
C301	1-115-871-11	ELECT	1uF	20%	50V
C302	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C303	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C314	1-126-794-11	ELECT	4.7uF	20%	25V
C315	1-126-794-11	ELECT	4.7uF	20%	25V
C316	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C317	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C318	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C319	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C320	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C322	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C323	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C324	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C325	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C400	1-115-871-11	ELECT	1uF	20%	50V
C401	1-115-871-11	ELECT	1uF	20%	50V
C402	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C414	1-126-794-11	ELECT	4.7uF	20%	25V
C415	1-126-794-11	ELECT	4.7uF	20%	25V
C416	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C417	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C418	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C419	1-163-251-11	CERAMIC CHIP	100PF	5%	50V

MAIN

Ref. No.	Part No.	Description				Remark
C420	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C424	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C425	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C501	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V	
C502	1-115-334-11	FILM	0.47uF	5%	50V	
C503	1-126-786-11	ELECT	47uF	20%	16V	
C504	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V	
C505	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V	
C506	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V	
C507	1-126-016-11	ELECT	4700uF	20%	16V	
C508	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V	
C510	1-126-786-11	ELECT	47uF	20%	16V	
C601	1-126-794-11	ELECT	4.7uF	20%	25V	
C700	1-164-346-11	CERAMIC CHIP	1uF		16V	
C701	1-126-794-11	ELECT	4.7uF	20%	25V	
C702	1-126-514-11	ELECT	22uF	20%	16V	
C703	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C704	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C705	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C706	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C707	1-163-021-11	CERAMIC CHIP	0.01uF	10%	50V	
C708	1-163-235-11	CERAMIC CHIP	22PF	5%	50V	
C709	1-163-237-11	CERAMIC CHIP	27PF	5%	50V	
C710	1-164-346-11	CERAMIC CHIP	1uF		16V	
C711	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C712	1-126-382-11	ELECT	100uF	20%	16V	
C713	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C800	1-126-791-11	ELECT	10uF	20%	16V	
C801	1-126-791-11	ELECT	10uF	20%	16V	
C802	1-126-791-11	ELECT	10uF	20%	16V	
C803	1-126-791-11	ELECT	10uF	20%	16V	
C804	1-126-791-11	ELECT	10uF	20%	16V	
C805	1-126-791-11	ELECT	10uF	20%	16V	
C806	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C807	1-164-505-11	CERAMIC CHIP	2.2uF		16V	
C808	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C900	1-126-791-11	ELECT	10uF	20%	16V	
C901	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C902	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C903	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C904	1-124-635-00	ELECT	220uF	20%	6.3V	
C905	1-125-710-11	DOUBLE LAYER	0.1F		5.5V	
C906	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C907	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C908	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C909	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C910	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C911	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C920	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C930	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C990	1-164-346-11	CERAMIC CHIP	1uF		16V	(C7970R)
C991	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C992	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C999	1-163-133-00	CERAMIC CHIP	470PF	5%	50V	
C1000	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	

Ref. No.	Part No.	Description	Remark
		< CONNECTOR/JACK >	
CN200	1-764-617-12	PIN, CONNECTOR (PC BOARD) 30P	
CN901	1-770-408-11	CONNECTOR, BOARD TO BOARD 14P	
CNJ600	1-580-907-31	PLUG, CONNECTOR (BUS CONTROL IN)	
CNP300	1-774-700-11	JACK, PIN 6P (BUS AUDIO IN, LINE OUT FRONT, LINE OUT REAR)	
CNP500	1-774-701-11	PIN, CONNECTOR 16P	
		< CONPOSITION CIRCUIT BLOCK >	
CP1	1-803-335-21	ABSORBER, CHIP SURGE (C7970R)	
		< DIODE >	
D1	8-719-158-15	DIODE RD5.6S-B	
D3	8-719-981-59	DIODE FC805	
D5	8-719-422-12	DIODE MA8039 (C7970R)	
D6	8-719-987-69	DIODE DAN217 (C7970R)	
D7	8-719-056-83	DIODE UDZ-TE-17-6.8B (C7970R)	
D200	8-719-066-98	DIODE RB051L-40TE25	
D202	8-719-158-49	DIODE RD12SB2	
D301	8-719-914-42	DIODE DA204K	
D500	8-719-988-61	DIODE 1SS355TE-17	
D501	8-719-056-83	DIODE UDZ-TE-17-6.8B	
D502	8-719-052-59	DIODE 1N5404TU-15	
D503	8-719-053-18	DIODE 1SR154-400TE-25	
D504	8-719-053-18	DIODE 1SR154-400TE-25	
D505	8-719-053-18	DIODE 1SR154-400TE-25	
D506	8-719-053-18	DIODE 1SR154-400TE-25	
D507	8-719-053-18	DIODE 1SR154-400TE-25	
D508	8-719-053-18	DIODE 1SR154-400TE-25	
D509	8-719-053-18	DIODE 1SR154-400TE-25	
D510	8-719-053-18	DIODE 1SR154-400TE-25	
D511	8-719-988-61	DIODE 1SS355TE-17	
D520	8-719-056-93	DIODE UDZ-TE-17-18B	
D521	8-719-978-69	DIODE DTZ-TT11-16B	
D522	8-719-158-49	DIODE RD12SB2	
D600	8-719-056-93	DIODE UDZ-TE-17-18B	
D601	8-719-056-93	DIODE UDZ-TE-17-18B	
D602	8-719-017-62	DIODE MA8068-L-TX	
D603	8-719-978-69	DIODE DTZ-TT11-16B	
D604	8-719-017-62	DIODE MA8068-L-TX	
D605	8-719-988-61	DIODE 1SS355TE-17	
D606	8-719-914-43	DIODE DAN202K	
D607	8-719-988-61	DIODE 1SS355TE-17	
D700	8-719-914-43	DIODE DAN202K	
D701	8-719-422-12	DIODE MA8039	
D702	8-719-914-44	DIODE DAP202K	
D703	8-719-988-61	DIODE 1SS355TE-17	
D800	8-719-053-18	DIODE 1SR154-400TE-25	
D801	8-719-053-18	DIODE 1SR154-400TE-25	
D802	8-719-988-61	DIODE 1SS355TE-17	
D803	8-719-053-18	DIODE 1SR154-400TE-25	
D804	8-719-053-18	DIODE 1SR154-400TE-25	
D900	8-719-988-61	DIODE 1SS355TE-17	
D901	8-719-056-88	DIODE UDZ-TE-17-11B	
D902	8-719-068-84	DIODE MAZL075D0LS0-TX/L	
D903	8-719-068-84	DIODE MAZL075D0LS0-TX/L	
D904	8-719-056-84	DIODE UDZ-TE-17-7.5B	

Ref. No.	Part No.	Description	Remark
D905	8-719-158-49	DIODE RD12SB2	
D906	8-719-056-84	DIODE UDZ-TE-17-7.5B	
D907	8-719-056-84	DIODE UDZ-TE-17-7.5B	
D912	8-719-914-44	DIODE DAP202K	
D913	8-719-056-85	DIODE UDZ-TE-17-8.2B	
D915	8-719-056-84	DIODE UDZ-TE-17-7.5B	
D916	8-719-988-61	DIODE 1SS355TE-17	
D917	8-719-056-88	DIODE UDZ-TE-17-11B	
		< FUSE >	
F1	1-532-877-11	FUSE (BLADE TYPE) (AUTO FUSE) 10A	
		< FERRITE BEAD >	
FB1	1-414-233-22	INDUCTOR CHIP 0uH (C7970R)	
FB2	1-414-233-22	INDUCTOR CHIP 0uH (C7970R)	
		< IC >	
IC100	8-759-586-54	IC TDA7427AD	
IC101	8-759-924-46	IC BA4560F (C7970R)	
IC102	8-759-492-59	IC SAA6588T-118 (C7970R)	
IC250	8-759-337-67	IC NJM2360AM (TE2)	
IC300	8-759-572-10	IC TDA7462D013TR	
IC500	8-759-490-74	IC TDA7384	
IC600	8-759-449-89	IC BA8270F-E2	
IC700	8-759-581-69	IC MB90574PFV-G-185-BND (C7970)	
IC700	8-759-581-70	IC MB90574PFV-G-186-BND (C7970R)	
IC800	8-759-347-50	IC BA3918-V3	
IC801	8-759-363-81	IC XC61AN4002PR	
IC802	8-759-495-76	IC RN5VD33AA-TL	
		< JACK >	
J1	1-785-503-11	JACK (ANT) (FM/AM ANTENNA)	
J900	1-566-822-41	JACK (REMOTE IN)	
		< COIL/SHORT >	
L1	1-412-058-11	INDUCTOR CHIP 10uH	
L2	1-216-295-00	SHORT 0	
L3	1-412-058-11	INDUCTOR CHIP 10uH	
L200	1-412-058-11	INDUCTOR CHIP 10uH	
L240	1-412-945-11	INDUCTOR 3.3uH	
L250	1-412-533-21	INDUCTOR 47uH	
L251	1-412-537-31	INDUCTOR 100uH	
L252	1-412-533-21	INDUCTOR 47uH	
L500	1-416-712-21	COIL, CHOKE 0.5A	
L700	1-412-058-11	INDUCTOR CHIP 10uH	
L800	1-469-086-21	INDUCTOR 22uH	
		< TRANSISTOR >	
Q1	8-729-230-49	TRANSISTOR 2SC2712-YG	
Q4	8-729-620-06	TRANSISTOR 2SC3052-EF (C7970)	
Q5	8-729-900-53	TRANSISTOR DTC114EK (C7970R)	
Q6	8-729-920-85	TRANSISTOR 2SD1664-QR	
Q7	8-729-921-25	TRANSISTOR FMC2 (C7970R)	
Q8	8-729-900-53	TRANSISTOR DTC114EK (C7970R)	
Q50	8-729-230-49	TRANSISTOR 2SC2712-YG (C7970R)	
Q51	8-729-921-25	TRANSISTOR FMC2 (C7970R)	

Ref. No.	Part No.	Description	Remark
Q101	8-729-920-21	TRANSISTOR DTC314TKH04 (C7970R)	
Q102	8-729-920-21	TRANSISTOR DTC314TKH04 (C7970R)	
Q103	8-729-921-25	TRANSISTOR FMC2 (C7970R)	
Q250	8-729-903-95	TRANSISTOR 2SB1188-T101-Q	
Q251	8-729-900-53	TRANSISTOR DTC114EK	
Q254	8-729-807-12	TRANSISTOR 2SD1802-S	
Q255	8-729-921-25	TRANSISTOR FMC2	
Q300	8-729-920-21	TRANSISTOR DTC314TKH04	
Q301	8-729-920-21	TRANSISTOR DTC314TKH04	
Q302	8-729-920-21	TRANSISTOR DTC314TKH04	
Q303	8-729-920-21	TRANSISTOR DTC314TKH04	
Q400	8-729-920-21	TRANSISTOR DTC314TKH04	
Q401	8-729-920-21	TRANSISTOR DTC314TKH04	
Q402	8-729-920-21	TRANSISTOR DTC314TKH04	
Q403	8-729-920-21	TRANSISTOR DTC314TKH04	
Q500	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q600	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q601	8-729-900-53	TRANSISTOR DTC114EK	
Q602	8-729-027-23	TRANSISTOR DTA114EKA-T146	
Q603	8-729-920-21	TRANSISTOR DTC314TKH04	
Q701	8-729-900-53	TRANSISTOR DTC114EK	
Q702	8-729-921-25	TRANSISTOR FMC2	
Q703	8-729-921-25	TRANSISTOR FMC2	
Q704	8-729-026-49	TRANSISTOR 2SA1037AK-T146-R	
Q900	8-729-620-06	TRANSISTOR 2SC3052-EF	
Q901	8-729-907-46	TRANSISTOR IMZ1	
Q903	8-729-026-68	TRANSISTOR 2SD2525 (TP)	
Q904	8-729-026-68	TRANSISTOR 2SD2525 (TP)	
Q905	8-729-924-73	TRANSISTOR FMA9	
Q906	8-729-921-25	TRANSISTOR FMC2	
Q907	8-729-921-25	TRANSISTOR FMC2	
Q908	8-729-620-06	TRANSISTOR 2SC3052-EF	
		< RESISTOR >	
R1	1-216-025-00	RES,CHIP 100 5%	1/10W (C7970R)
R1	1-216-049-11	RES,CHIP 1K 5%	1/10W (C7970)
R2	1-216-025-00	RES,CHIP 100 5%	1/10W
R3	1-216-073-00	METAL CHIP 10K 5%	1/10W
R4	1-216-081-00	METAL CHIP 22K 5%	1/10W
R5	1-216-049-11	RES,CHIP 1K 5%	1/10W
R6	1-216-037-00	METAL CHIP 330 5%	1/10W
R7	1-216-073-00	METAL CHIP 10K 5%	1/10W
R8	1-216-081-00	METAL CHIP 22K 5%	1/10W (C7970R)
R9	1-216-295-00	SHORT 0 (C7970)	
R10	1-216-073-00	METAL CHIP 10K 5%	1/10W
R11	1-216-083-00	METAL CHIP 27K 5%	1/10W
R12	1-216-077-00	METAL CHIP 15K 5%	1/10W
R13	1-216-097-00	RES,CHIP 100K 5%	1/10W (C7970R)
R14	1-216-097-00	RES,CHIP 100K 5%	1/10W
R15	1-216-073-00	METAL CHIP 10K 5%	1/10W (C7970R)
R15	1-216-081-00	METAL CHIP 22K 5%	1/10W (C7970)
R16	1-216-025-00	RES,CHIP 100 5%	1/10W

MAIN

Ref. No.	Part No.	Description			Remark
R17	1-216-025-00	RES,CHIP	100	5%	1/10W
R18	1-216-073-00	METAL CHIP	10K	5%	1/10W (C7970)
R19	1-216-113-00	METAL CHIP	470K	5%	1/10W (C7970)
R22	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R24	1-216-049-11	RES,CHIP	1K	5%	1/10W (C7970)
R25	1-216-097-00	FES,CHIP	100K	5%	1/10W (C7970)
R26	1-216-089-00	RES,CHIP	47K	5%	1/10W (C7970)
R27	1-216-049-11	RES,CHIP	1K	5%	1/10W (C7970)
R27	1-216-295-00	SHORT	0 (C7970R)		
R28	1-216-057-00	METAL CHIP	2.2K	5%	1/10W (C7970R)
R29	1-216-057-00	METAL CHIP	2.2K	5%	1/10W (C7970R)
R30	1-216-073-00	METAL CHIP	10K	5%	1/10W (C7970R)
R31	1-216-073-00	METAL CHIP	10K	5%	1/10W (C7970R)
R32	1-216-097-00	RES,CHIP	100K	5%	1/10W (C7970R)
R33	1-216-065-00	RES,CHIP	4.7K	5%	1/10W (C7970R)
R34	1-216-061-00	METAL CHIP	3.3K	5%	1/10W (C7970R)
R35	1-216-025-00	RES,CHIP	100	5%	1/10W (C7970R)
R36	1-216-121-00	RES,CHIP	1M	5%	1/10W (C7970R)
R37	1-216-057-00	METAL CHIP	2.2K	5%	1/10W (C7970R)
R38	1-216-049-11	RES,CHIP	1K	5%	1/10W (C7970R)
R39	1-216-025-00	RES,CHIP	100	5%	1/10W
R40	1-216-025-00	RES,CHIP	100	5%	1/10W
R41	1-216-041-00	METAL CHIP	470	5%	1/10W (C7970)
R42	1-216-025-00	RES,CHIP	100	5%	1/10W
R43	1-216-295-00	SHORT	0 (C7970)		
R44	1-216-295-00	SHORT	0 (C7970R)		
R45	1-216-295-00	SHORT	0 (C7970)		
R46	1-216-295-00	SHORT	0 (C7970R)		
R50	1-216-065-00	RES,CHIP	4.7K	5%	1/10W (C7970R)
R51	1-216-113-00	METAL CHIP	470K	5%	1/10W (C7970R)
R52	1-216-049-11	RES,CHIP	1K	5%	1/10W (C7970R)
R53	1-216-077-00	METAL CHIP	15K	5%	1/10W (C7970R)
R55	1-216-041-00	METAL CHIP	470	5%	1/10W (C7970R)
R56	1-216-025-00	RES,CHIP	100	5%	1/10W (C7970R)
R57	1-216-025-00	RES,CHIP	100	5%	1/10W (C7970R)
R61	1-216-295-00	SHORT	0 (C7970R)		
R62	1-216-295-00	SHORT	0 (C7970)		
R64	1-216-295-00	SHORT	0		
R72	1-216-295-00	SHORT	0		
R80	1-216-001-00	METAL CHIP	10	5%	1/10W (C7970R)
R103	1-216-063-00	METAL CHIP	3.9K	5%	1/10W (C7970R)
R103	1-216-061-00	METAL CHIP	3.3K	5%	1/10W (C7970)
R104	1-216-081-00	METAL CHIP	22K	5%	1/10W (C7970R)
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W (C7970)
R105	1-216-081-00	METAL CHIP	22K	5%	1/10W (C7970R)
R105	1-216-085-00	METAL CHIP	33K	5%	1/10W (C7970)
R106	1-216-063-00	METAL CHIP	3.9K	5%	1/10W (C7970R)
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W (C7970)
R201	1-216-049-11	RES,CHIP	1K	5%	1/10W
R202	1-216-049-11	RES,CHIP	1K	5%	1/10W
R250	1-219-986-11	METAL CHIP	0.2	1%	1/4W
R255	1-216-663-11	METAL CHIP	3.3K	0.5%	1/10W
R256	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R257	1-216-073-00	METAL CHIP	10K	5%	1/10W
R259	1-216-190-00	RES,CHIP	470	5%	1/8W
R260	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R304	1-216-033-00	METAL CHIP	220	5%	1/10W
R305	1-216-081-00	METAL CHIP	22K	5%	1/10W
R306	1-216-081-00	METAL CHIP	22K	5%	1/10W
R307	1-216-033-00	METAL CHIP	220	5%	1/10W
R308	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R309	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R310	1-216-089-00	RES,CHIP	47K	5%	1/10W
R311	1-216-089-00	RES,CHIP	47K	5%	1/10W
R312	1-216-075-00	METAL CHIP	12K	5%	1/10W
R313	1-216-069-11	METAL CHIP	6.8K	5%	1/10W
R405	1-216-033-00	METAL CHIP	220	5%	1/10W
R406	1-216-081-00	METAL CHIP	22K	5%	1/10W
R407	1-216-081-00	METAL CHIP	22K	5%	1/10W
R408	1-216-033-00	METAL CHIP	220	5%	1/10W
R409	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R410	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R411	1-216-089-00	RES,CHIP	47K	5%	1/10W
R412	1-216-089-00	RES,CHIP	47K	5%	1/10W
R413	1-216-069-11	METAL CHIP	6.8K	5%	1/10W
R414	1-216-075-00	METAL CHIP	12K	5%	1/10W
R500	1-216-049-11	RES,CHIP	1K	5%	1/10W
R501	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R502	1-216-073-00	METAL CHIP	10K	5%	1/10W
R503	1-216-073-00	METAL CHIP	10K	5%	1/10W
R504	1-216-073-00	METAL CHIP	10K	5%	1/10W
R505	1-216-085-00	METAL CHIP	33K	5%	1/10W
R506	1-216-073-00	METAL CHIP	10K	5%	1/10W
R600	1-216-025-00	RES,CHIP	100	5%	1/10W
R601	1-216-073-00	METAL CHIP	10K	5%	1/10W
R602	1-216-097-00	RES,CHIP	100K	5%	1/10W
R603	1-216-150-00	RES,CHIP	10	5%	1/8W

Ref. No.	Part No.	Description			Remark
R604	1-216-089-00	RES,CHIP	47K	5%	1/10W
R700	1-216-073-00	METAL CHIP	10K	5%	1/10W
R701	1-216-089-00	RES,CHIP	47K	5%	1/10W
R702	1-216-101-00	METAL CHIP	150K	5%	1/10W
R703	1-216-049-11	RES,CHIP	1K	5%	1/10W
R704	1-216-025-00	RES,CHIP	100	5%	1/10W
R705	1-216-025-00	RES,CHIP	100	5%	1/10W
R709	1-216-089-00	RES,CHIP	47K	5%	1/10W
R710	1-216-025-00	RES,CHIP	100	5%	1/10W
R711	1-216-295-00	SHORT	0		
R712	1-216-037-00	METAL CHIP	330	5%	1/10W
R713	1-216-097-00	RES,CHIP	100K	5%	1/10W
R717	1-216-081-00	METAL CHIP	22K	5%	1/10W
R719	1-216-025-00	RES,CHIP	100	5%	1/10W
R720	1-216-025-00	RES,CHIP	100	5%	1/10W
R721	1-216-049-11	RES,CHIP	1K	5%	1/10W
R726	1-216-049-11	RES,CHIP	1K	5%	1/10W
R727	1-216-049-11	RES,CHIP	1K	5%	1/10W
R730	1-216-025-00	RES,CHIP	100	5%	1/10W
R731	1-216-025-00	RES,CHIP	100	5%	1/10W
R732	1-216-025-00	RES,CHIP	100	5%	1/10W
R734	1-216-025-00	RES,CHIP	100	5%	1/10W
R738	1-216-025-00	RES,CHIP	100	5%	1/10W
R741	1-216-025-00	RES,CHIP	100	5%	1/10W
R745	1-216-025-00	RES,CHIP	100	5%	1/10W
R748	1-216-025-00	RES,CHIP	100	5%	1/10W
R749	1-216-025-00	RES,CHIP	100	5%	1/10W
R751	1-216-025-00	RES,CHIP	100	5%	1/10W
R754	1-216-025-00	RES,CHIP	100	5%	1/10W
R759	1-216-025-00	RES,CHIP	100	5%	1/10W
R760	1-216-025-00	RES,CHIP	100	5%	1/10W
R763	1-216-025-00	RES,CHIP	100	5%	1/10W
R764	1-216-025-00	RES,CHIP	100	5%	1/10W
R770	1-216-097-00	RES,CHIP	100K	5%	1/10W
R771	1-216-097-00	RES,CHIP	100K	5%	1/10W
R772	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R773	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R774	1-216-097-00	RES,CHIP	100K	5%	1/10W
R777	1-216-097-00	RES,CHIP	100K	5%	1/10W
R780	1-216-097-00	RES,CHIP	100K	5%	1/10W (C7970/C7970R: AEP, UK)
R781	1-216-097-00	RES,CHIP	100K	5%	1/10W (C7970R: German)
R782	1-216-097-00	RES,CHIP	100K	5%	1/10W (C7970: US, Canadian)
R783	1-216-097-00	RES,CHIP	100K	5%	1/10W (C7970: E)
R800	1-216-113-00	METAL CHIP	470K	5%	1/10W
R801	1-216-097-00	RES,CHIP	100K	5%	1/10W
R802	1-216-049-11	RES,CHIP	1K	5%	1/10W
R897	1-216-001-00	METAL CHIP	10	5%	1/10W (C7970R)
R900	1-216-222-00	RES,CHIP	10K	5%	1/8W
R901	1-216-089-00	RES,CHIP	47K	5%	1/10W
R902	1-216-089-00	RES,CHIP	47K	5%	1/10W
R903	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R904	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R905	1-216-073-00	METAL CHIP	10K	5%	1/10W
R906	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R907	1-216-037-00	METAL CHIP	330	5%	1/10W
R908	1-216-037-00	METAL CHIP	330	5%	1/10W
R909	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R910	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R911	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R912	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R913	1-216-025-00	RES,CHIP	100	5%	1/10W
R914	1-216-025-00	RES,CHIP	100	5%	1/10W
R915	1-216-025-00	RES,CHIP	100	5%	1/10W
R916	1-216-097-00	RES,CHIP	100K	5%	1/10W
R917	1-216-097-00	RES,CHIP	100K	5%	1/10W
R918	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R919	1-216-675-11	METAL CHIP	10K	0.5%	1/10W
R920	1-216-025-00	RES,CHIP	100	5%	1/10W
R921	1-216-025-00	RES,CHIP	100	5%	1/10W
R923	1-216-073-00	METAL CHIP	10K	5%	1/10W
R930	1-216-073-00	METAL CHIP	10K	5%	1/10W
R981	1-216-121-00	RES,CHIP	1M	5%	1/10W
R990	1-216-198-00	RES,CHIP	1K	5%	1/8W (C7970R)
R991	1-216-081-00	METAL CHIP	22K	5%	1/10W
R992	1-216-081-00	METAL CHIP	22K	5%	1/10W
R993	1-216-097-00	RES,CHIP	100K	5%	1/10W
R994	1-216-097-00	RES,CHIP	100K	5%	1/10W
R995	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R996	1-216-097-00	RES,CHIP	100K	5%	1/10W
R999	1-216-097-00	RES,CHIP	100K	5%	1/10W
		< CONPOSITION CIRCUIT BLOCK >			
RB900	1-233-412-11	RES, CHIP NETWORK 1K (3216)			
RB901	1-233-412-11	RES, CHIP NETWORK 1K (3216)			
RB902	1-233-576-11	RES, CHIP NETWORK 100			
RB903	1-233-576-11	RES, CHIP NETWORK 100			
		< VARIABLE RESISTOR >			
RV1	1-223-590-21	RES, ADJ, CARBON 220K (C7970R)			
		< SWITCH >			
S701	1-572-552-21	SWITCH, SLIDE (FREQUENCY SELECT)			(C7970: E)
S900	1-692-431-21	SWITCH, TACTILE (RESET)			
S901	1-571-754-31	SWITCH, PUSH (1 KEY) (NOSE DETECT)			
		< THERMISTOR >			
TH600	1-801-792-21	THERMISTOR, POSITIVE			
		< TUNER UNIT >			
TU1	A-3320-693-A	TUX-011 (E) (FM/AM TUNER UNIT) (C7970)			
TU1	A-3282-045-A	TUX-012 (E) (FM/AM TUNER UNIT) (C7970R)			
		< VIBRATOR >			
X1	1-781-258-11	VIBRATOR, CRYSTAL (10.25MHz)			
X2	1-579-242-11	VIBRATOR, CRYSTAL (4.332MHz) (C7970R)			
X700	1-767-833-21	VIBRATOR, CERAMIC (3.68MHz)			
X701	1-579-886-21	VIBRATOR, CRYSTAL (32.768kHz)			

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SENSOR SERVO

Ref. No.	Part No.	Description			Remark
	A-3317-457-A	SENSOR BOARD, COMPLETE			
		***********************			

For the parts on the SENSOR board, replace the entire mounted board.
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Ref. No.	Part No.	Description			Remark
*	A-3317-459-A	SERVO BOARD, COMPLETE			
		**********************			
		< CAPACITOR >			
C101	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C102	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C104	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C105	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C106	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C201	1-104-543-11	FILM CHIP	0.0022uF	5%	50V
C202	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C301	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C302	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C304	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C305	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C306	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C307	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C308	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C309	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C310	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C311	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C314	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C315	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C316	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C317	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C318	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C319	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C320	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C321	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C322	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C324	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C325	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C326	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C327	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C328	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C329	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C330	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C331	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C333	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C334	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C335	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C337	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C338	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C339	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C340	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C341	1-162-918-11	CERAMIC CHIP	18PF	5%	50V
C342	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C343	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C344	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C345	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C346	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C347	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C348	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C349	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C350	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C351	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C352	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C353	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C356	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C357	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C358	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C359	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C361	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C362	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C402	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C403	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C501	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C503	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C504	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C505	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C506	1-104-852-11	TANTAL. CHIP	22uF	20%	10V
C510	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C511	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C512	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C513	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C514	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C515	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C516	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN101	1-779-389-21	HOUSING,CONNECTOR (PC BOARD) 30P			
CN102	1-573-929-11	CONNECTOR, FFC/FPC (ZIF) 20P			
CN103	1-764-439-21	CONNECTOR, FPC 11P			
		< DIODE >			
D401	8-719-157-93	DIODE RD3.0SB2			
D501	8-719-988-61	DIODE 1SS355TE-17			
		< FERRITE BEAD >			
FB301	1-414-235-11	INDUCTOR CHIP 0uH			
FB302	1-414-760-21	INDUCTOR CHIP 0uH			
		< IC >			
IC101	8-759-571-84	IC PCM1718E/2K			
IC301	8-752-384-47	IC CXD2652AR			
IC302	8-752-074-77	IC CXA2523R			
IC303	8-759-430-25	IC BH6511FS-E2			
IC304	8-759-096-87	IC TC7WU04FU (TE12R)			
IC305	8-759-040-83	IC BA6287F			
IC306	8-759-058-62	IC TC7S08FU (TE85R)			
IC307	8-759-368-16	IC MN41V4400TT-08S			
IC401	8-759-909-71	IC BA4558F			
IC501	8-752-898-83	IC CXP84340-201Q			
IC502	8-759-238-47	IC TC74HCT7007AF (EL)			
IC503	8-759-238-47	IC TC74HCT7007AF (EL)			

Ref. No.	Part No.	Description			Remark
		< COIL >			
L101	1-412-058-11	INDUCTOR CHIP	10uH		
L102	1-412-058-11	INDUCTOR CHIP	10uH		
L301	1-412-058-11	INDUCTOR CHIP	10uH		
L302	1-412-058-11	INDUCTOR CHIP	10uH		
L303	1-412-039-51	INDUCTOR CHIP	100uH		
L304	1-412-039-51	INDUCTOR CHIP	100uH		
L305	1-412-039-51	INDUCTOR CHIP	100uH		
L306	1-412-039-51	INDUCTOR CHIP	100uH		
L501	1-412-058-11	INDUCTOR CHIP	10uH		
		< TRANSISTOR >			
Q301	8-729-230-49	TRANSISTOR	2SC2712-YG		
Q302	8-729-026-49	TRANSISTOR	2SA1037AK-T146-R		
Q401	8-729-920-85	TRANSISTOR	2SD1664-QR		
Q402	8-729-106-60	TRANSISTOR	2SB1115A		
Q403	8-729-421-22	TRANSISTOR	UN2211		
		< RESISTOR >			
R101	1-216-073-00	METAL CHIP	10K	5%	1/10W
R102	1-216-833-11	METAL CHIP	10K	5%	1/16W
R104	1-216-049-11	RES,CHIP	1K	5%	1/10W
R201	1-216-073-00	METAL CHIP	10K	5%	1/10W
R202	1-216-049-11	RES,CHIP	1K	5%	1/10W
R301	1-216-809-11	METAL CHIP	100	5%	1/16W
R302	1-216-809-11	METAL CHIP	100	5%	1/16W
R303	1-216-809-11	METAL CHIP	100	5%	1/16W
R304	1-216-809-11	METAL CHIP	100	5%	1/16W
R305	1-216-809-11	METAL CHIP	100	5%	1/16W
R306	1-216-809-11	METAL CHIP	100	5%	1/16W
R307	1-216-809-11	METAL CHIP	100	5%	1/16W
R308	1-216-809-11	METAL CHIP	100	5%	1/16W
R311	1-216-821-11	METAL CHIP	1K	5%	1/16W
R312	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R316	1-216-821-11	METAL CHIP	1K	5%	1/16W
R317	1-216-809-11	METAL CHIP	100	5%	1/16W
R318	1-216-833-11	METAL CHIP	10K	5%	1/16W
R319	1-216-845-11	METAL CHIP	100K	5%	1/16W
R320	1-216-855-11	METAL CHIP	680K	5%	1/16W
R324	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R325	1-216-821-11	METAL CHIP	1K	5%	1/16W
R327	1-216-821-11	METAL CHIP	1K	5%	1/16W
R328	1-216-811-11	METAL CHIP	150	5%	1/16W
R329	1-216-819-11	METAL CHIP	680	5%	1/16W
R330	1-216-853-11	METAL CHIP	470K	5%	1/16W
R331	1-216-809-11	METAL CHIP	100	5%	1/16W
R332	1-216-809-11	METAL CHIP	100	5%	1/16W
R333	1-216-819-11	METAL CHIP	680	5%	1/16W
R334	1-216-809-11	METAL CHIP	100	5%	1/16W
R335	1-216-815-11	METAL CHIP	330	5%	1/16W
R336	1-216-853-11	METAL CHIP	470K	5%	1/16W
R337	1-216-853-11	METAL CHIP	470K	5%	1/16W
R338	1-216-833-11	METAL CHIP	10K	5%	1/16W
R339	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R340	1-216-843-11	METAL CHIP	68K	5%	1/16W
R341	1-216-837-11	METAL CHIP	22K	5%	1/16W
R342	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remark
R343	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R344	1-216-833-11	METAL CHIP	10K	5%	1/16W
R345	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R346	1-216-841-11	METAL CHIP	47K	5%	1/16W
R347	1-216-833-11	METAL CHIP	10K	5%	1/16W
R348	1-218-708-11	METAL CHIP	4.7K	0.5%	1/16W
R349	1-216-025-00	RES,CHIP	100	5%	1/10W
R350	1-216-142-00	RES,CHIP	4.7	5%	1/8W
R351	1-218-700-11	METAL CHIP	2.2K	0.5%	1/16W
R352	1-218-700-11	METAL CHIP	2.2K	0.5%	1/16W
R353	1-218-700-11	METAL CHIP	2.2K	0.5%	1/16W
R354	1-216-857-11	METAL CHIP	1M	5%	1/16W
R355	1-216-833-11	METAL CHIP	10K	5%	1/16W
R356	1-216-833-11	METAL CHIP	10K	5%	1/16W
R357	1-216-017-00	RES,CHIP	47	5%	1/10W
R401	1-216-073-00	METAL CHIP	10K	5%	1/10W
R402	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R403	1-216-065-00	RES,CHIP	4.7K	5%	1/10W
R404	1-216-809-11	METAL CHIP	100	5%	1/16W
R405	1-218-692-11	METAL CHIP	1K	0.5%	1/16W
R406	1-218-714-11	METAL CHIP	8.2K	0.5%	1/16W
R501	1-216-821-11	METAL CHIP	1K	5%	1/16W
R502	1-216-821-11	METAL CHIP	1K	5%	1/16W
R503	1-216-821-11	METAL CHIP	1K	5%	1/16W
R504	1-216-821-11	METAL CHIP	1K	5%	1/16W
R505	1-216-821-11	METAL CHIP	1K	5%	1/16W
R506	1-216-845-11	METAL CHIP	100K	5%	1/16W
R507	1-218-708-11	METAL CHIP	4.7K	0.5%	1/16W
R510	1-216-845-11	METAL CHIP	100K	5%	1/16W
R511	1-216-847-11	METAL CHIP	150K	5%	1/16W
R512	1-216-845-11	METAL CHIP	100K	5%	1/16W
R516	1-216-809-11	METAL CHIP	100	5%	1/16W
R517	1-216-809-11	METAL CHIP	100	5%	1/16W
R518	1-216-809-11	METAL CHIP	100	5%	1/16W
R519	1-216-809-11	METAL CHIP	100	5%	1/16W
R520	1-216-809-11	METAL CHIP	100	5%	1/16W
R521	1-216-809-11	METAL CHIP	100	5%	1/16W
R522	1-216-821-11	METAL CHIP	1K	5%	1/16W
R523	1-216-821-11	METAL CHIP	1K	5%	1/16W
R524	1-216-821-11	METAL CHIP	1K	5%	1/16W
R525	1-216-845-11	METAL CHIP	100K	5%	1/16W
R526	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R527	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R528	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R529	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R530	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R531	1-216-845-11	METAL CHIP	100K	5%	1/16W
R532	1-216-864-11	METAL CHIP	0	5%	1/16W
R533	1-216-845-11	METAL CHIP	100K	5%	1/16W
R534	1-216-845-11	METAL CHIP	100K	5%	1/16W
R535	1-216-845-11	METAL CHIP	100K	5%	1/16W
R536	1-216-864-11	METAL CHIP	0	5%	1/16W
R537	1-216-809-11	METAL CHIP	100	5%	1/16W
R538	1-216-845-11	METAL CHIP	100K	5%	1/16W
R539	1-216-845-11	METAL CHIP	100K	5%	1/16W
R540	1-216-845-11	METAL CHIP	100K	5%	1/16W
R542	1-216-845-11	METAL CHIP	100K	5%	1/16W

SERVO SUB

Ref. No.	Part No.	Description	Remark
R545	1-216-864-11	METAL CHIP 0 5%	1/16W
		< CONPOSITION CIRCUIT BLOCK >	
RB301	1-233-576-11	RES, CHIP NETWORK 100	
RB302	1-233-576-11	RES, CHIP NETWORK 100	
RB503	1-233-412-11	RES, CHIP NETWORK 1K (3216)	
		< THERMISTOR >	
TH501	1-810-421-11	THERMISTOR NTH5G36B103K01TE	
		< VIBRATOR >	
X301	1-767-429-21	VIBRATOR, CRYSTAL (22.5792MHz)	
X501	1-760-365-11	VIBRATOR, CERAMIC (10MHz)	

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Ref. No.	Part No.	Description	Remark
*	1-672-684-11	SUB BOARD **********	
		< CONNECTOR >	
CN891	1-774-944-11	SOCKET, CONNECTOR 14P	
CNP890	1-770-736-21	SOCKET, CONNECTOR 14P	
		< LED >	
LED891	8-719-064-72	LED BG1101F-10-TR (MD DISC SLOT)	
		< SWITCH>	
LSW890	1-771-703-21	SWITCH, KEY BOARD (WITH LED) (⏏)	
		< RESISTOR >	
R890	1-216-033-00	METAL CHIP 220 5%	1/10W
R893	1-216-295-00	SHORT 0	

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Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS **************	
18	1-776-207-72	CORD (WITH CONNECTOR) (POWER) (C7970)	
18	1-776-527-71	CORD (WITH CONNECTOR) (ISO) (POWER)	(C7970R)
153	1-654-693-11	SENSOR FLEXIBLE BOARD	
⚠165	8-583-046-05	OPTICAL PICK-UP KMS-241B/J1RP	
LCD501	1-803-444-11	DISPLAY PANEL, LIQUID CRYSTAL	
M901	A-3301-407-A	MOTOR ASSY, SP (SPINDLE)	
M902	A-3291-190-A	MOTOR ASSY, SL (SLED)	
M903	A-3291-191-A	MOTOR ASSY, LO (LOADING)	

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Ref. No.	Part No.	Description	Remark
		************** HARDWARE LIST **************	
#1	7-621-772-10	SCREW +B 2X4	
#2	7-685-792-09	SCREW +PTT 2.6X6 (S)	
#3	7-685-794-09	SCREW +PTT 2.6X10 (S)	
#4	7-627-553-28	SCREW, PRECISION +P 2X2.5	
#5	7-685-851-04	SCREW +BVTT 2X4 (S)	
#6	7-624-102-04	STOP RING 1.5, TYPE-E	
#7	7-627-852-37	PRECISION SCREW +P 1.7X1.8 TYPE3	
#8	7-621-772-08	SCREW +B 2X3	
#9	7-621-555-10	SCREW +K 2X3	
#10	7-685-106-19	SCREW +P 2X10 TYPE2 NON-SLIT	

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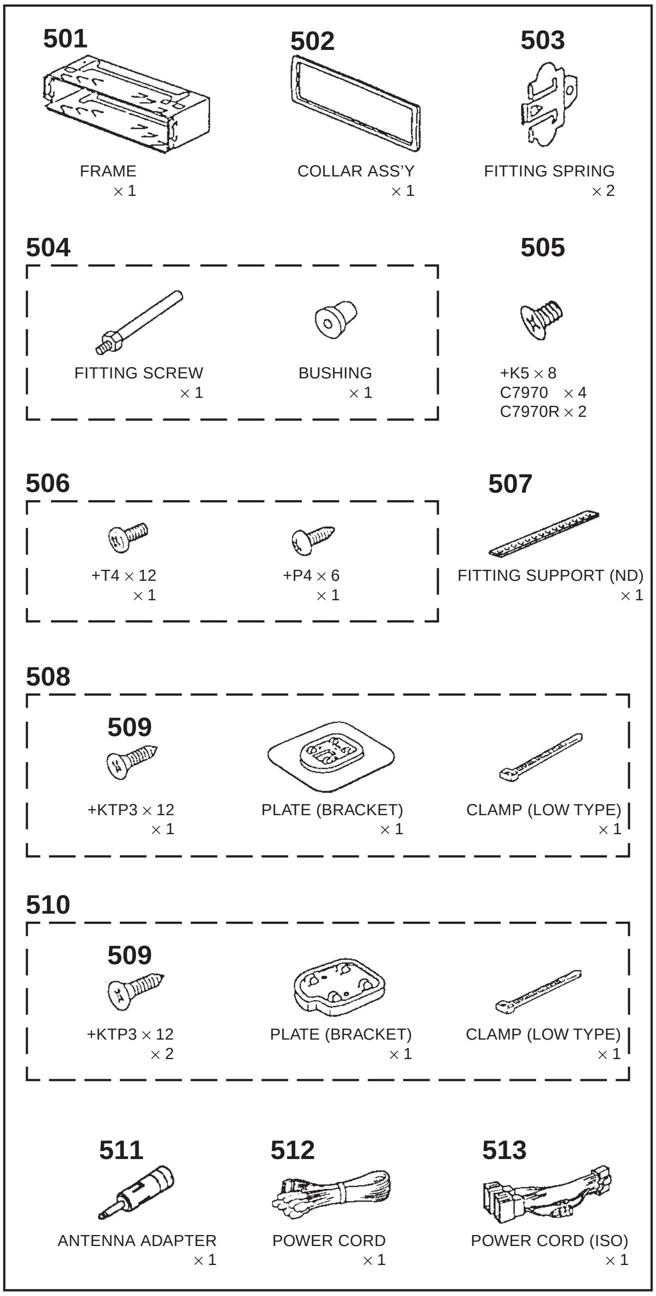
ACCESSORIES & PACKING MATERIALS
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Part No.	Description
1-473-067-71	WIRED REMOTE COMMANDER (RM-X4S)
3-012-070-01	LABEL (SOUND) (2) (for RM-X4S)
3-865-839-11	MANUAL, INSTRUCTION (ENGLISH) (C7970: US, Canadian)
3-865-839-21	MANUAL, INSTRUCTION (FRENCH) (C7970: Canadian)
3-865-839-31	MANUAL, INSTRUCTION (ENGLISH, SPANISH, CHINESE) (C7970: E)
3-865-840-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, FRENCH) (C7970: US, Canadian)
3-865-840-21	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH, CHINISE) (C7970: E)
3-865-841-11	MANUAL, INSTRUCTION (ENGLISH, SPANISH, SWEDISH, PORTUGUESE) (C7970R: AEP, UK)
3-865-841-21	MANUAL, INSTRUCTION (GERMAN, RUSSIAN) (C7970R: German)
3-865-841-31	MANUAL, INSTRUCTION (FRENCH, GERMAN, DUTCH, ITALIAN) (C7970R: AEP)
3-865-842-11	MANUAL, INSTRUCTION, INSTALL (ENGLISH, SPANISH, SWEDISH, PORTUGUESE) (C7970R: AEP, UK)
3-865-842-21	MANUAL, INSTRUCTION, INSTALL (FRENCH, GERMAN, DUTCH, ITALIAN, RUSSIAN) (C7970R: AEP, German)
X-3374-810-1	CASE ASSY (for FRONT PANEL)

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The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
		PARTS FOR INSTALLATION AND CONNECTION	
		*************************************	
501	3-009-613-21	FRAME	
502	X-3376-976-1	COLLAR ASSY	
503	3-027-138-01	SPRING, FITTING	
504	X-3366-405-1	SCREW ASSY (EXP), FITTING (C7970: E/C7970R)	
505	3-934-325-01	SCREW, +K (5X8) TAPPING	
506	X-3368-725-1	SCREW ASSY, FITTING (C7970: US, Canadian)	
507	3-924-961-01	SUPPORT (ND), FITTING (C7970: US, Canadian)	
508	X-3373-432-1	BRACKET ASSY (for RM-X4S) (C7970/C7970R: AEP, German)	
509	7-685-248-14	SCREW +KTP 3X12 TYPE4	
510	X-3369-817-1	BRACKET ASSY (for RM-X4S) (C7970R: AEP, UK)	
511	1-465-459-21	ADAPTER, ANTENNA (C7970R)	
512	1-776-207-72	CORD (WITH CONNECTOR) (POWER) (C7970)	
513	1-776-527-71	CORD (WITH CONNECTOR) (ISO) (POWER) (C7970R)	



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